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Technical Note 36

A MULTIPLET TABLE OF ASTROPHYSICAL INTEREST

Revised Edition

Part I—Table of Multiplets

Part II—Finding List of All Lines in the Table of Multiplets

U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS

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NATIONAL BUREAU OF STANDARDS
Technical Note
36
NOVEMBER 1959

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Revised Edition

Charlotte E. Moore

Part I—Table of Multiplets

Part II—Finding List of All Lines in the Table of Multiplets

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ABSTRACT

Pending the completion of a current edition, the 1945 Multiplet Table is being reprinted here to meet continuing demands. The leading lines in 196 atomic spectra of 85 chemical elements are listed in related groups called multiplets. Estimated intensities, excitation potentials and multiplet designations are given for the individual lines, and each multiplet is assigned a number. An extensive bibliography covers the source material used for the compilation.

The Table is presented in two parts:

Part I includes the multiplets, with the spectra of each element being given in order of increasing ionization, and the elements in order of increasing atomic number.

Part II is a Finding List in which all the lines in Part I are entered in order of increasing wavelength, with their multiplet numbers.

The range of the Table is from 2951 A to 13164 A. A supplementary table of "Forbidden Lines" extends from 2972 A to 12645 A.

Part I—Table of Multiplets

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PREFACE

The preparation of a Multiplet Table that will meet the needs of all astrophysicists both now and in the future is an almost overwhelming undertaking. The most eminent workers would have to exercise careful judgment in handling the spectroscopic literature today. The writer has been bold enough to attempt it, only because of the many requests for a revision of the earlier Table and the enthusiasm with which it was received in spite of its many faults. Admittedly the present work is far from ideal. With all its limitations, however, it could never have been published without a vast amount of collaboration. The generosity and encouragement of spectroscopists and astrophysicists both at home and abroad has been the inspiration for this book. No two people would present the same choice of material, and the writer feels that her judgment has been far from adequate for this task. Whatever usefulness the volume may have is due to the many workers who have stood by, ready to supply material, to discuss puzzling questions and to offer the most valuable suggestions.

Since 1932 work on spectrum analysis has progressed so speedily that the *selection of data useful to the astrophysicist* has been one of the major problems. Requests for an entirely complete Multiplet Table have been received, but the purpose of this work has been to provide a book whose scope is limited—one that contains *astrophysically* useful data but is not unwieldy because of the inclusion of other material from the vast storehouse of spectroscopic literature now accessible. The bibliography should be consulted by those who desire more complete Tables of Multiplets.

More work of astrophysical importance remains to be done, chiefly on the spectra of the rare-earths and on the second spark spectra in general. It is hoped that a supplement can be prepared to cover these spectra and that a large part of the present work will prove to be definitive.

This book has been brought to a conclusion during the second world war. Consequently, restrictions of all kinds have been imposed and assistance has been limited. A very careful attempt has been made to prepare the manuscript accurately. The writer believes, however, that errors have inevitably been made in the compiling and editing of more than 25,750 spectral lines, for the work has been done with the minimum amount of clerical aid. She relies upon the users to detect serious errors and report them to her so that a list of errata may be published. Suggestions will be welcome.

Mention has been made of the cordial cooperation experienced from the beginning of this work. It could not now have been brought to a conclusion without the hearty and enthusiastic support of Henry Norris Russell, the author of the first list of multiplets of astrophysical importance. He has generously offered his valuable collection of data on spectra and has been ever ready to help in spite of the many complications that have arisen in carrying out such an extensive program.

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Princeton, New Jersey
April 3, 1945

A MULTIPLET TABLE OF ASTROPHYSICAL INTEREST

Part I

TABLE OF MULTIPLETS

I. INTRODUCTION

1. The detailed interpretation of stellar spectra demands of the laboratory investigators an ever increasing amount of careful work on spectrum analysis. With the impetus provided by Hund's theory, remarkably rapid strides have been made. Additional encouragement, particularly in handling complex spectra, has resulted from the great development of mechanical devices to decrease the enormous labor of measuring and reducing spectrograms. The valuable machine developed by Harrison at the Massachusetts Institute of Technology for this purpose has already proven its worth and promises much more in the future.

2. From an astrophysical point of view there is a definite need for a compendium of multiplets. The manuscript lists prepared for the present work have been almost continuously on loan to various investigators.

Spectrum analysis has not been carried far enough to compile a completely satisfactory Table. So many spectra have been analyzed, however, that to wait for perfection is to retard scientific progress. For many spectra "prediction" may be invoked to extend the existing lists of observed laboratory lines, and this has been done throughout the work. Three general classes of lines are tabulated: those observed in the laboratory; predicted "permitted" lines calculated from combinations among spectroscopic term values; and predicted "forbidden" lines.

3. A complete multiplet table would be welcomed by many scientists. It is not the purpose of the present work to furnish this. The range of wave-lengths is roughly from λ2950 to λ13000. The violet limit is imposed by the ozone in our atmosphere, which cuts off stellar observations beyond this region. In the infra-red the scarcity and inaccuracy of laboratory wave-lengths have made it necessary to predict many lines.

Even within these limits, only the lines thought to be useful in the interpretation of astronomical spectra are listed. These are selected from the elements sufficiently abundant to appear in stellar spectra, and from only those stages of ionization and types of excitation which are to be expected.

4. The importance of handling the various laboratory spectra by multiplets was stressed in 1925 by Russell,[1] who published the original multiplet table under the title "A List of Ultimate and Penultimate Lines of Astrophysical Interest." Useful as it was, this soon proved to be incomplete, not only because it was intentionally limited, but also because more data were becoming available. Work on spectrum analysis was proceeding so rapidly that an extension of his list was imperative.

5. When the writer was at the Mount Wilson Observatory in 1931 she prepared a solar multiplet table for private use in revising and extending the identification of lines in the solar and sun-spot spectra. This manuscript was constantly used by astronomers. In response to requests for copies, the laboratory data for light elements present in early type stars were added and a limited edition was printed in 1933.[2] This edition was out of date and out of print almost immediately—the demand for it had not been anticipated. To meet the situation the present book was planned; it is the first book designed from the start as a multiplet table for astrophysicists. For this reason, solar wave-lengths and intensities are excluded. It is essentially a manual of laboratory data needed by astronomers.

6. In the Multiplet Table (Part I) the *elements* are arranged in order of increasing atomic number. For each spectrum of each element the *multiplets* are listed in order of increasing energy level (see § 27 for details), and are numbered for reference. While such an arrangement is useful in studying stellar spectra, it introduces one serious disadvantage. The search for a *particular line* is laborious. This has been a widespread and an entirely justified criticism of the earlier Table. A Finding List has, therefore, been prepared and forms Part II of this Contribution. Here every line in the Revised Multiplet Table (hereinafter referred to as the R M T), is entered in order of wave-length, listing the spectrum to which the line belongs, and the number of the multiplet containing it.

II. THE MULTIPLET TABLE—General Considerations

7. The astronomical spectra forming the basis of selection of the elements, spectra and lines included, fall into several general classes. The sun receives first consideration. The observed solar spectrum now extends from λ2914* to λ13495, which accounts for the range covered in this Table. In addition, the spot and chromospheric spectra, stellar spectra of every type from Wolf-Rayet stars down through M-stars, including giants and dwarfs, spectra of novae and nebulae, and of the corona must be taken into account.

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[1] *Mt. Wilson Contr.* No. 286; *Ap. J.* **61**, 223, 1925.
[2] A Multiplet Table of Astrophysical Interest, Princeton 1933.
* Accurate measures have not been made to the violet of λ2949.

8. The astrophysical importance of a spectrum depends upon the abundance of the element in the most favorable celestial sources, and the number and excitation potentials of the lines in the visible region. Almost all of the elements of atomic number 1-30 (*H-Zn*) have, on this account, preference over those that follow. The analyses of their arc spectra are almost all adequate for astrophysical purposes.

For the first spark spectra, which on the whole are more important, the analyses are fairly complete (except for *Mn* II and *Co* II) The lists for these spectra in the R M T include all but the weakest observed lines except for a few elements of low abundance.

The second spark spectra are less completely analyzed in the two short periods. In the first long period *Fe* III is complete and only a beginning has been made for any of the rest.

Detailed knowledge of spectra of more highly ionized atoms is confined to a few of the lighter elements.

9. The spectra of the elements from *Ga* to *Ba* are on the average considerably richer, and much less completely analyzed; but these elements are decidedly less abundant and the existing data are usually, though not always, fairly adequate for astrophysical purposes.

10. The rare earths, which are no rarer than neighboring elements in cosmical abundance, usually have rich spectra, which adds to their significance. The arc spectra rarely appear. The first spark spectra are important in many stars, and lines of the second spark spectra of several of them have recently been identified.[1] Analysis of the third spectra is barely begun; for the second spectra it is well advanced for six of these elements and well begun for four more.

The lists given here for the rare earths are approximately definitive for *La* II, *Eu* II and *Lu* II. It is hoped that greatly improved data for the others will be available in the near future. Extended tables for rare earths are likely to form the larger part of a supplement to the R M T.

11. The elements from *Hf* onward are of low abundance, and the data for them, though incomplete, meet most astrophysical needs tolerably.

III. BASIS OF SELECTION

12. The Short Periods (*H-A*).

These spectra are so important in the hotter stars that the lists are entirely or almost complete for all degrees of ionization included, except for a few elements of low cosmic abundance.

The spectra of Wolf-Rayet stars,[2, 3] novae and nebulae contain many "predicted" lines of these elements, not yet observed in the laboratory. For many light elements more predicted lines could probably have been included to advantage. More accurate values of predicted wave-lengths could also have been given, particularly in the spark spectra of *C*, *N*, and *O*. The precedent set by Edlén in his work on *Wolf-Rayet*[3] stars was followed. In many cases the term separations are known with sufficient accuracy to justify predictions to 0.1 A, although he uses no decimals. Use of the photographic method of reproduction for this book has prevented all but the most necessary alterations of the original manuscript. Changes later realized to be improvements have been omitted because of this restriction.

13. Bowen's[4] work naturally forms the guide for selecting material related to *nebular* spectra. The leading nebular lines are due to forbidden lines of the light elements. In anticipation of future needs, the lists of forbidden lines have, however, been greatly extended throughout the first long period.

14. No particular type of stellar spectrum has influenced the choice of lines from the first spark spectra of light elements. The lists have not been restricted to include only those lines known to be present in the stars. The abundance of the element has been the chief factor considered in omitting lines. For elements known to be fairly abundant, favorable predicted lines have been added. The lists are as extensive as the present state of analysis permits.

15. For some years Mr. H. D. Babcock at Mount Wilson, has been preparing for publication a monograph on the Infra-Red Solar Spectrum. His work now covers the interval λλ6600–13495 and includes approximately 7300 lines. The leading accessible lines of the arc spectra of most of the light elements lie in this interval. For example, important solar lines are unquestionably due to *H*, *C* I, *N* I, *O* I, *Mg* I, *Si* I, *P* I, and *S* I. In fact, the presence of phosphorus could not be detected until the solar observations were extended to the infra-red. The present Table has been compiled with Mr. Babcock's work especially in mind.

For unblended lines the solar wave-lengths in this region are far more accurate than many laboratory measures. *Si* affords an excellent illustration. The lines are sharp in the sun and the term separations among solar wave-

[1] Swings, *Ap. J.* **100**, 132, 1944.
[2] Payne, *Zeit. fur Ap.* **7**, 1, 1933.
[3] Edlén, *Zeit. fur Ap.* **7**, 378, 1933.
[4] *Rev. Mod. Phys.* **8**, 55 (No. 2), 1936.

numbers are so consistent that accurate solar term values can be calculated. These term values have been very useful in predicting wave-lengths. Similarly, the triplet and singlet "F" series of *Mg* I were extended with the aid of solar data.[1] The constancy of the term separations proves beyond doubt the correctness of the identifications.

16. The First Long Period (*K-Kr*).

The elements in the first long period from *K* through *Ni* constitute by far the major portion of this book (pp. 23–77), on account of the complexity of their spectra. Generally speaking, the arc and first spark spectra are well analyzed except for those mentioned in § 8. Many lines of these spectra (as far as *Cu*) are present throughout the entire range of the solar and sun-spot spectra, the flash spectrum, stellar spectra like those of γ Cygni and α Persei, and later type stars.

The only second spark spectrum in this group that can be given completely is that of *Fe* III. Astronomers eagerly await the definitive analysis of the rest.

17. The spectrum of *Fe* I deserves special mention. Although the importance of the analysis has long been realized, a complete monograph of this spectrum has only recently been published.[2] Practically every known line of *Fe* I is present in the sun. An amazing number of predicted lines agree well with solar wave-lengths. A statistical study of these coincidences indicates that most of them are real. For the statistical work the predicted lines were graded as "good," "fair," or "poor." The grades were based on the behavior of all the lines of each multiplet in the solar spectrum, the agreement in wave-length, and other factors. Only the "good" and "fair" lines have been published to date. Since the grading was severe, and since predicted wave-lengths are much in demand, many of the lines graded "poor," but considered useful to other workers, have been retained in the R M T.

18. The Second Long Period (*Rb-Xe*).

These elements are observed chiefly in the solar and sun-spot spectra and later dwarf stars. Except for *Y* II and *Zr* II the lists are restricted to the lines from low atomic energy levels. They are, however, more extensive than in the earlier Multiplet Table and slightly longer than are necessary to meet present needs.

19. Forbidden lines are assuming more and more significance in astronomical sources. A special section of the R M T (pp. 100–110) and one of the Finding List (pp. 87–96) are devoted to them. It is extremely difficult to predict what the future needs will be.

To list the array of possible predicted lines even among only abundant elements would be prohibitive. The present selection has been based largely on suggestions made by Dr. P. Swings. He was planning to publish a paper on this subject, but this was unknown to the writer when she was confronted with the problem of including them in the R M T. He generously suggested that they be given here instead of in a separate paper, and has examined the manuscript carefully. The author is extremely fortunate to have had the benefit of his extensive knowledge of both the theoretical and astrophysical aspects of forbidden lines while preparing this section of the Table. Details are discussed later in § 44.

IV. GENERAL ARRANGEMENT OF THE MULTIPLET TABLE

20. The foregoing remarks serve only as the most general guide to the scope of the material presented here. The book is colored throughout by individual judgment in the editing of spectroscopic literature. A serious attempt has been made to limit it in such a manner that it will be a useful astrophysical handbook. Even so, it is now more than twice the size of the earlier edition.

21. The elements in the R M T are discussed in order of increasing atomic number, and the spectra of each element in order of increasing ionization.

Table 1 gives a convenient arrangement of the Periodic Table of the elements. This Table is self-explanatory. The atomic number and chemical symbol of each element are given and elements with similar spectra in the short and long periods are connected by diagonal lines.

[1] Russell, Babcock and Moore, *Phys. Rev.* (2) **46**, 826 (No. 9), 1934. Babcock and Moore, *Ap. J.* **101**, 374, 1945.
[2] Russell, Moore and Weeks, *Trans. Am. Phil. Soc.* **34**, 111 (Part 2), 1944.

Table 1

The Periodic Table [1]

First Period		1 H		2 He														
Second Period		3 Li		4 Be		5 B		6 C		7 N		8 O		9 F		10 Ne		
Third Period		11 Na		12 Mg		13 Al		14 Si		15 P		16 S		17 Cl		18 A		
Fourth Period	19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
Fifth Period	37 Rb	38 Sr	39 Y	40 Zr	41 Cb	42 Mo	43 (Ma)	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
Sixth Period	55 Cs	56 Ba	57* La	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85	86 Rn
Seventh Period	87	88 Ra	89 Ac	90 Th	91 Pa	92 U												

* Atomic numbers 58–71—Rare Earths. See below.

Rare Earths	58 Ce	59 Pr	60 Nd	61 (Il)	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu

In Table 2 the elements are listed in the alphabetical order of their names. The successive columns contain, respectively, the name, the chemical symbol, and the atomic number of each element.

Table 2

Alphabetical List of Elements

Name	Symbol	Atomic No.	Name	Symbol	Atomic No.	Name	Symbol	Atomic No.
Actinium	Ac	89	Chlorine	Cl	17	Holmium	Ho	67
Aluminium	Al	13	Chromium	Cr	24	Hydrogen	H	1
Antimony	Sb	51	Cobalt	Co	27	(Illinium	Il	61)†
Argon	A	18	Columbium	Cb	41	Indium	In	49
Arsenic	As	33	Copper	Cu	29	Iodine	I	53
Barium	Ba	56	Dysprosium	Dy	66	Iridium	Ir	77
Beryllium	Be	4	Erbium	Er	68	Iron	Fe	26
Bismuth	Bi	83	Europium	Eu	63	Krypton	Kr	36
Boron	B	5	Fluorine	F	9	Lanthanum	La	57
Bromine	Br	35	Gadolinium	Gd	64	Lead	Pb	82
Cadmium	Cd	48	Gallium	Ga	31	Lithium	Li	3
Caesium	Cs	55	Germanium	Ge	32	Lutecium	Lu	71
Calcium	Ca	20	Gold	Au	79	Magnesium	Mg	12
Carbon	C	6	Hafnium	Hf	72	Manganese	Mn	25
Cerium	Ce	58	Helium	He	2	(Masurium	Ma	43)†

† Not isolated.
[1] International Chemical Symbols—1941.

Table 2—Continued

Name	Symbol	Atomic No.	Name	Symbol	Atomic No.	Name	Symbol	Atomic No.
Mercury	Hg	80	Radium	Ra	88	Tellurium	Te	52
Molybdenum	Mo	42	Radon	Rn	86	Terbium	Tb	65
Neodymium	Nd	60	Rhenium	Re	75	Thallium	Tl	81
Neon	Ne	10	Rhodium	Rh	45	Thorium	Th	90
Nickel	Ni	28	Rubidium	Rb	37	Thulium	Tm	69
Nitrogen	N	7	Ruthenium	Ru	44	Tin	Sn	50
Osmium	Os	76	Samarium	Sm	62	Titanium	Ti	22
Oxygen	O	8	Scandium	Sc	21	Tungsten	W	74
Palladium	Pd	46	Selenium	Se	34	Uranium	U	92
Phosphorus	P	15	Silicon	Si	14	Vanadium	V	23
Platinum	Pt	78	Silver	Ag	47	Xenon	Xe	54
Polonium	Po	84	Sodium	Na	11	Ytterbium	Yb	70
Potassium	K	19	Strontium	Sr	38	Yttrium	Y	39
Praseodymium	Pr	59	Sulphur	S	16	Zinc	Zn	30
Protoactinium	Pa	91	Tantalum	Ta	73	Zirconium	Zr	40

22. Headings.

Each spectrum of each element for which multiplets are given, begins with a heading containing four entries: the ionization potential, an astrophysical grade of the analysis, a grade of the list, expressing the fraction of classified lines listed, and finally, the date of completion of the manuscript of that spectrum. For example, *Cr* I (p. 37) starts with the heading

Cr I I P 6.74 Anal A List B March 1941.

23. The Ionization Potential.

For arc spectra many of these have been taken from the list published by Meggers in 1941.[1] For the first spark spectra he has kindly furnished a similar list [2] which has been extensively used. The monograph by Edlén [3] has furnished many more, but the values have been recalculated using the factor 0.00012345 instead of the one he used (see § 35). Edlén's unpublished values are quoted [4] for *Ne*. For many other elements the I P has been obtained from the limits published in the papers on analysis, as for Edlén's results. The list by Boyce [5] is frequently quoted, particularly in the section dealing with Forbidden Lines. Those interested in the source are advised to consult the part of the bibliography pertaining to analysis (Tables 9 and 10), or one of the above mentioned general lists.

24. The completeness of analysis from the standpoint of the astrophysicist (§§ 8–11) is indicated by four grades. "Anal A" signifies that practically all the important lines of wave-length > 2950 are classified, "Anal B" that only a small fraction remain unclassified, "Anal C" that a considerable proportion are unclassified and "Anal D" that the analysis is seriously incomplete.

This rating necessarily involves a large amount of opinion and should not be given too much weight. No two appraisements would agree completely. Its purpose is to indicate the present state of analysis with regard to the needs of the astronomer.

From the viewpoint of the physicist, the state of the *term* analysis of the various spectra has been similarly summarized elsewhere by means of grades A, B, C etc. With the aid of Hund's theory the physicist can compare the number of predicted and observed *terms* and assign a grade accordingly, whether or not most of the leading lines occur in a given region of the spectrum. Both Boyce [5] and Shenstone [6] have published extensive surveys.

On account of the different viewpoints, the two grades are often not identical for the same spectrum.

25. A similar grading "List A, B, C, or D" is introduced to indicate the percentage of classified lines of a given spectrum included in the R M T. Since all lines of each spectrum considered are not equally useful to the astrophysicist, the omissions have been much more drastic in some cases than in others. For example, practically every

[1] *Journ. Opt. Soc. Am.* **31**, 39 (No. 1), 1941.
[2] Unpublished material, April 1941.
[3] *Nova Acta Regiæ Societatis Scientiarum Upsaliensis* (IV) **9**, No. 6, 1933.
[4] Communicated by Swings in a letter, March 1945.
[5] *Rev. Mod. Phys.* **13**, 1 (No. 1), 1941.
[6] Reports on Progress in Physics **5**, 210, 1939.

line of *Fe* I observed in the laboratory is present or accounted for in the solar spectrum.[1] This applies to weak as well as strong lines. Hence, all classified lines of *Fe* I to the red of λ2950 are entered and the list entry in the heading is "List A". Most of the spark spectra of the first long period are in this class, unless the element is scarce in stars. For many spark spectra most of the observed lines are in the violet and ultra-violet. In such cases the list may be very short, although graded "List A". This means that only a small fraction of the total number of observed classified lines lie in the region considered in this book.

When all but the weakest classified lines are given, the list is graded "B". The spectra of *Na* I and *Mg* I illustrate "List B", the higher series members having been omitted as unimportant. In anticipation of requests for more material, the general policy has been to include slightly more than is necessary. Since all classified lines are not given, however, the list cannot be graded "A".

"List C" denotes that most of the strong lines are entered: "List D", that only the leading strong lines are given.

In grading the *lists*, unclassified lines have not been given consideration (although the stronger ones are listed after the multiplets of a spectrum). The purpose of this grading is to enable the reader to judge how many classified lines have been omitted, regardless of whether or not the *analysis* is complete. Thus for *Co* II few lines are classified, but all these are listed. Hence this element is in the class "Anal C, List A."

26. The last entry at the head of each spectrum gives the month and year in which that section of manuscript was completed. This work has extended over such a long period that the date of publication does not apply even approximately to the date at which some spectra were last examined. It is hoped that the lists are up to date, but if important references have been missed, or if existing unpublished material should replace that included here, the writer invites such suggestions.

V. ARRANGEMENT OF THE MULTIPLETS OF EACH SPECTRUM

27. Reference must be made to some details of spectrum analysis in order to discuss the plan of presentation adopted here. In brief, the atoms of a gas, when excited by radiation, absorb certain wave-lengths corresponding to transitions of their outer electrons from lower energy levels to higher ones. From differences in the wave numbers of the observed lines, energy levels can be worked out, each line being produced by a transition between two such levels. Related *levels* are grouped accordingly to well known rules to form spectroscopic *terms*. Transitions between *terms* give rise to groups of related lines called *multiplets*.

In the RMT the terms of each spectrum have been arranged in order of increasing value of the component of *lowest* energy. This defines the relative level of the term, starting with the lowest term zero. The excitation potentials (columns 4 and 5) express in electron volts the values of the energy levels of those term components involved in the production of each line (see §35).

To illustrate, the lowest term of *Fe* I is a^5D. This term is made up of five energy levels whose E P's are respectively 0.00, 0.05, 0.09, 0.11 and 0.12. The next term is a^5F. Here the components have E P's 0.86, 0.91, 0.95, 0.99 and 1.01. For the purposes of this book the terms are considered in order of the lowest level of each, i.e. a^5D 0.00, a^5F 0.86 etc. This is to avoid confusion in spectra whose term values overlap seriously.

In each spectrum all multiplets with the same low term are in one group. The various groups are listed in the order of increasing value of the low terms. Within a group (which represents the combinations of a given low term with higher terms) the multiplets follow the order of increasing high term values.

For example, all combinations from a^5D of *Fe* I (Multiplets 1–11) form the first group. These multiplets are listed in order of increasing high E P, 2.39, 2.82, 2.93, 3.20 etc. The next low term is a^5F. The combinations from this term form the next group (Multiplets 12–31) etc.

In certain multiplets, the lowest components of one or both of the terms involved are not represented. This does not alter the arrangement.

Whenever the low level changes, the break in the continuity is indicated by three long dashes between the groups. For *Fe* I the first of these occurs between multiplets 11 and 12.

When terms are widely separated this arrangement results in listing the multiplets from a given low term in the order of decreasing wave-length of the leading line of each multiplet, since increasing energy of the high terms automatically results in increasing wave number, or decreasing wave-length.

The wave-length criterion alone was used for part of the R M T until the overlapping of terms in some complex spectra of the first long period introduced serious complications of arrangement. Then the more rigorous procedure

[1] Russell, Moore and Weeks, *Trans. Am. Phil. Soc.* **34** (Part 2), 111, 1944.

described above was adopted. Some spectra had been typed before the strictly orderly listing was put into effect. Owing to the excessive amount of labor involved in making such minor changes, slight irregularities of arrangement have not been corrected. For the greater part of the Table, however, the multiplets are in orderly array.

28. The energy *levels* that are grouped to form spectroscopic *terms* are defined by inner quantum numbers, commonly known as J-values. The terms have *multiplicities* (which are either all odd or all even in a given spectrum), and are further defined by azimuthal quantum numbers L which have the values 1, 2, 3 etc. for terms labeled S, P, D, F, G, H, I, K. The complete multiplet designation of any line includes all of these quantities for both the lower and upper energy level involved in the production of the line.

In the R M T a simplified plan has been adopted. The inner quantum numbers are listed separately from the rest of the designation, in column six, under the heading J. The J-value belonging to the lower term comes first and is followed by that of the higher term. In the next column, headed "Multiplet Desig" the spectroscopic designation of the lower term is always stated first, followed by a dash, then that of the higher term. For example, in multiplet No. 5 of *Fe* I the first line, 3719.935 has J-values 4–5. The rest of the designation is a^5D-z^5F°. In the complete notation the "4" appears as the subscript of a^5D and 5 as that of z^5F°, i.e. a^5D_4-$z^5F^\circ_5$. The complete designation of the second line λ3737.133, is a^5D_3-$z^5F^\circ_4$ etc. The "a" and "z" merely distinguish these ^5D and $^5F^\circ$ terms from others of the same type. This notation is discussed later in § 38. For both terms the superscript 5 denotes the multiplicity.

"Permitted" lines occur among combinations between two sets of terms, one "odd" and the other "even". The superscript "°" attached to ^5F tells that this is the odd term. When both terms belong to the same set (odd or even), the lines are commonly called "Forbidden".

Within a multiplet the arrangement of the individual lines is governed by the J-values. Each multiplet is entered as if it were written in multiplet array, i. e. the lines on the main diagonal come first, then the strongest satellite lines, then the next strongest etc. This is best illustrated by considering the inner quantum numbers, J, of each type of spectroscopic term. For convenience the J-values of all terms from S through I, of multiplicities 1–11 and 2–10 are given in Table 3, which applies equally to odd or even terms.

Even multiplicites are on the left and odd on the right half of the table. The types of terms (in order of increasing L value) S, P, D, F, G, H, I are in the vertical column on the left.

To arrange any multiplet in standard array, such as Multiplet No. 5 of *Fe* I, a^5D-z^5F°, find the J-values of the two types of terms (odd or even) from Table 3. The term ^5D is listed under multiplicity 5, and entry D on the left (J-values are 4, 3, 2, 1, 0). The term $^5F^\circ$ has J-values 5, 4, 3, 2, 1. Write these arrays as follows, with the *low* term *horizontally* arranged, and the *high* one *vertically* arranged:

a^5D / z^5F°	$^5D_4$	$^5D_3$	$^5D_2$	$^5D_1$	$^5D_0$
$^5F^\circ_5$	x_1				
$^5F^\circ_4$	y_1	x_2			
$^5F^\circ_3$	z_1	y_2	x_3		
$^5F^\circ_2$		z_2	y_3	x_4	
$^5F^\circ_1$			z_3	y_4	x_5

Table 3

J-Values of Spectroscopic Terms

Multiplicity		2	4	6	8	10	1	3	5	7	9	11
L	Term											
1	S	½	1½	2½	3½	4½	0	1	2	3	4	5
2	P	1½	2½	3½	4½	5½	1	2	3	4	5	6
		½	1½	2½	3½	4½		1	2	3	4	5
			½	1½	2½	3½		0	1	2	3	4
3	D	2½	3½	4½	5½	6½	2	3	4	5	6	7
		1½	2½	3½	4½	5½		2	3	4	5	6
			1½	2½	3½	4½		1	2	3	4	5
			½	1½	2½	3½			1	2	3	4
				½	1½	2½			0	1	2	3
4	F	3½	4½	5½	6½	7½	3	4	5	6	7	8
		2½	3½	4½	5½	6½		3	4	5	6	7
			2½	3½	4½	5½		2	3	4	5	6
			1½	2½	3½	4½			2	3	4	5
				1½	2½	3½			1	2	3	4
				½	1½	2½				1	2	3
					½	1½				0	1	2
5	G	4½	5½	6½	7½	8½	4	5	6	7	8	9
		3½	4½	5½	6½	7½		4	5	6	7	8
			3½	4½	5½	6½		3	4	5	6	7
			2½	3½	4½	5½			3	4	5	6
				2½	3½	4½			2	3	4	5
				1½	2½	3½				2	3	4
					1½	2½				1	2	3
					½	1½					1	2
						½					0	1
6	H	5½	6½	7½	8½	9½	5	6	7	8	9	10
		4½	5½	6½	7½	8½		5	6	7	8	9
			4½	5½	6½	7½		4	5	6	7	8
			3½	4½	5½	6½			4	5	6	7
				3½	4½	5½			3	4	5	6
				2½	3½	4½				3	4	5
					2½	3½				2	3	4
					1½	2½					2	3
						1½					1	2
						½						1
												0
7	I	6½	7½	8½	9½	10½	6	7	8	9	10	11
		5½	6½	7½	8½	9½		6	7	8	9	10
			5½	6½	7½	8½		5	6	7	8	9
			4½	5½	6½	7½			5	6	7	8
				4½	5½	6½			4	5	6	7
				3½	4½	5½				4	5	6
					3½	4½				3	4	5
					2½	3½					3	4
						2½					2	3
						1½						2
												1

Only those combinations between the low and high terms, for which J changes by O or ± 1 are "permitted". This rule restricts the number of lines to be expected to those denoted by x, y, and z, where the subscripts 1, 2, 3 represent decreasing J-values. The main diagonal lines are x_1–x_5. The first satellites are y_1–y_4 and the second satellites, z_1–z_3.

In the R M T, the lines on the main diagonal are listed first, in order of decreasing J-values. From the example, the first lines entered are those in the positions x_1, x_2, x_3, x_4, x_5 in the Multiplet. The line at x_1 has the designation a^5D_4–$z^5F^\circ_5$, at x_2 a^5D_3–$z^5F^\circ_4$ etc. In the R M T the lines of this multiplet appear in the following order:

	λ	J	Desig	
x_1	3719.935	4–5	a^5D–z^5F°	Main Diagonal
x_2	3737.133	3–4	"	
x_3	3745.561	2–3	"	
x_4	3748.264	1–2	"	
x_5	3745.901	0–1	"	
y_1	3679.915	4–4	"	First Satellites
y_2	3705.567	3–3	"	
y_3	3722.564	2–2	"	
y_4	3733.319	1–1	"	
z_1	3649.304	4–3	"	Second Satellites
z_2	3683.054	3–2	"	
z_3	3707.828	2–1	"	

An example of a symmetrical multiplet should also be given. Multiplet No. 12 of *Cr* II (p. 43) has the designation a^4P–z^4P°. Since the multiplicity (4) and type of term (P) are identical for both terms, the J-values are also identical. From Table 3 the J-values for a ^4P term are 2½, 1½, ½.

z^4P° \ a^4P	$^4P_{2\frac{1}{2}}$	$^4P_{1\frac{1}{2}}$	$^4P_{\frac{1}{2}}$
$^4P^\circ_{2\frac{1}{2}}$	x_1	y_1	
$^4P^\circ_{1\frac{1}{2}}$	$\mathbf{y_1}$	x_2	y_2
$^4P^\circ_{\frac{1}{2}}$		$\mathbf{y_2}$	x_3

Here both sets of satellites involve the same J-values, 1½–2½, ½–1½ and 2½–1½, 1½–½. Throughout the R M T for such cases, combinations in which J-values read from *larger* J to *smaller* J are entered first. Here, for example the pair 2½–1½, 1½–½ (y_1 and y_2 in bold face type above), precede the pair with J-values 1½–2½, ½–1½ respectively.

According to elementary theory the leading line of the principal diagonal is the strongest in the multiplet, and first satellites are stronger than the second, while the two sets of satellites in a symmetrical multiplet are comparable.[1]

In the majority of spectra intersystem combinations occur, i.e. those in which the multiplicities of the terms differ by 2 or even 4, as for example multiplets 1 and 332 of *Fe* I, a^5D–z^7D° and z^7F°–e^3G respectively. These multiplets often include strong lines, particularly for the heavier elements. The rule $\Delta J=0$ or ± 1 is strictly observed but there are no known formulae for the prediction of intensities, which are often apparently erratic. When intersystem lines are strong, intensities in regular multiplets often deviate from the formulae. The intersystem multiplets are arranged in the R M T on the "diagonal" basis described above, so far as irregularities permit.

29. For all types of multiplets the reader must bear in mind that the arrays described above, and the J-values in Table 3 give all the possible permitted *theoretical* transitions.

In many cases the R M T does not give theoretically complete multiplets. Reasons for this are:

1. When the strongest lines of a multiplet are likely to be very weak in astrophysical sources, the weaker ones have been deliberately omitted even though they may have been observed in the laboratory. Omissions are indicated by a "†" following the "Multiplet Designation".

2. Individual lines in a multiplet are sometimes much fainter than theoretically expected and have never been observed. Sequences along the diagonals are thus broken. For such lines predicted positions are given only when it is believed that they *may* be observable astrophysically.

[1] For details see Russell, *Mt. Wilson Contr.* No. 537; *Ap. J.* **83**, 129, 1936.

3. In some cases one or more components of a spectroscopic term have not yet been indentified.

Such cases may be detected by comparing the column headed J for a given multiplet with the theoretical array of permitted lines, just described.

30. For the more important spectra, limited lists of the leading unclassified lines follow the multiplets. The R M T is not designed as a source for the investigator who is interested primarily in unclassified lines.

Three general factors have controlled the selection: the abundance of the element in astronomical sources, the grade of the analysis and the accuracy of the laboratory material. Under "Anal A" more lines will be unclassified for a complex spectrum like *Fe* I than for a simpler spectrum, but the percentage of strong lines will be small. Under "Anal B" there will be more and stronger unclassified lines than if the grade were A, etc.

If A. S. King has made a temperature classification of the spectrum the leading unclassified lines can be readily chosen from his lists. In such cases his temperature class follows the intensity in the R M T

Among arc spectra the lists of unclassified lines are longest for *N* I, *Ti* I, *Cr* I, *Mn* I, *Fe* I, *Ni* I, *Tm* I. Only a few lines are listed for *Si* I, *S* I, *Ca* I, *Sc* I, *V* I, *Co* I, *Y* I, *Lu* I, and none for any other elements.

For first spark spectra the lists of unclassified lines may be summarized as follows:

Limited	*Si* II, *A* II, *Fe* II, *Cb* II, *La* II, *Nd* II, *Sm* II, *Gd* II, *Tm* II.
Very limited	*O* II, *S* II, *Cl* II, *Ti* II, *V* II, *Cr* II, *Y* II, *Zr* II, *Ce* II, *Pr* II, *Eu* II, *Hf* II.
Measures inadequate	*Mn* II, *Co* II, *Ni* II.

Lists are given for only five "third" spectra: *C* III (where a dubious classification has been suggested for the lines) *N* III, *Si* III, *S* III and *Fe* III. The only one of any length is that of *Fe* III.

For some spark spectra, notably *La* II and *Fe* III it is not certain that the separation of the lines in different states of ionization is definitive. This is mentioned in the R M T under these spectra. For many spectra the separation is so uncertain that no unclassified lines have been included. For no spectrum is a complete list given.

31. A few notes are appended to the list of multiplets for certain spectra. These fall into two classes: those dealing with notation (see § 37), and those dealing with fine structure. This book does not discuss fine structure or isotope effects in any detail. Those spectra in which the fine structure or isotope effects should be called especially to the attention of the astrophysicist have this fact mentioned, as follows:

Li II	Very wide fine structure
Mg I, *Al* II	Fine structure
Hg I, *Tl* I	Many lines show fine structure
He II, *Bi* I	Wide fine structure.

VI. COLUMNS OF THE TABLE OF MULTIPLETS

32. Wave-length.

The data for each spectrum are given in seven columns. The first contains the *laboratory* wave-length in I A units. In the earlier edition solar wave-lengths were listed for all but the lighter elements (see § 5). Since any solar line may be a blend, it was decided to replace this entry by laboratory material. An effort has been made to select the best available wave-length for each line. The individual lists are far from homogeneous—there is often an enormous range in accuracy among the lines of a given spectrum.

The reference from which each line has been taken is indicated in column two, by the letters A, B, C etc. Table 7 (p. xxiv), contains the number of the reference in the bibliography to which the letters refer. The letter "P" in this column denotes throughout that the wave-length is predicted from the laboratory term values, which may be found in the references to analysis, Table 9 (p. xxvii).

The order of the letters represents roughly the estimated precision of the measures, but this must not be interpreted too literally because some investigators have measured only limited regions of a spectrum. Consequently, several accurate sources may be used within a multiplet. Furthermore, the letters A, B, etc. denote very different degrees of accuracy for different spectra. While the earlier letters of the alphabet are the more favored choices, it would be erroneous to conclude that the letters are arranged strictly according to the writer's rating of the accuracy of the measures.

33. Symbols in the R M T.

Since most of the symbols occur in column one, they will all be described here.

Wave-length column:

// This symbol follows the wave-length of the "Raie Ultime" as determined from observations in the laboratory. High transition probabilities as well as low energy levels are involved, and they do not always come from the lowest levels. When the known *Raies Ultimes* are to the violet of λ2950 they are not included in the R M T. With the exception of Eu II[1] they are all quoted from Meggers [2], who generously furnished the data on first spark spectra [3] in advance of publication.

* An asterisk precedes the wave-length throughout the R M T to denote a blend. If no symbol follows the wave-length, the line is blended with another line in the same spectrum. For example, the line *2970.106 appears in multiplets 10 and 11 of *Fe* I.

An "*" is also used to denote blended intensities. For symbols in the intensity column see § 34G.

§ This symbol follows the wave-length (an "*" always preceding) to indicate a blend of an arc and spark line; or of two spark lines of the same element in spectra of different degrees of ionization. When this pair of symbols appears with an arc line it denotes that the arc line is blended with a line in the first spark spectrum of the element. Similarly, if it appears with a line in a first spark spectrum, the spark line is blended with an arc line of that element. Examples:

Fe I Multiplet No. 28 *3116.633§—Blend of *Fe* I and *Fe* II.

Cr II Multiplet No. 4 *3349.34§—Blend of *Cr* II and *Cr* I.

All uses of pairs of symbols not covered by the general cases of blends of arc lines with those in the first spark spectra or vice-versa, as described above, are summarized in Table 4, where another pair of symbols "* and §§" is also introduced.

TABLE 4

SYMBOLS DENOTING BLENDS—SPECIAL CASES

Spectrum	* and §	* and §§
C II	.....	C II and C III
C III	.....	C III " C II
P II	P II and P III	P II " P IV
P III	P III " P II	P III " P IV
P IV	P IV " P III	P IV " P II
S II	S II " S III	
S III	S III " S II	
K III	K III " K II	
Fe II	.....	Fe II " Fe III
Fe III	Fe III " Fe II	Fe III " Fe I

Column one of Table 4 indicates the spectrum in which the symbols are found. Columns two and three of the Table contain the pairs of symbols used and the meaning of each. For example:

C II Multiplet No. 45 *4368.14§§—Blend of *C* II and *C* III.

S II Multiplet No. 50 *3860.64§—Blend of *S* II and *S* III.

The symbols mentioned above apply to blended lines which have come to the attention of the writer, but doubtless many more blends exist than are thus noted. A careful examination of the Finding List should reveal any important blends, but this list was prepared after the R M T was typed, and consequently could not be used to check the thoroughness with which the blended lines are marked.

m An "m" preceding the wave-length indicates that the line is masked (see § 34F).

† This symbol follows the Multiplet Designation to call attention to the fact that not all the lines observed in the multiplet are listed in the R M T. The violet limit λ2950 explains the omission of some strong lines. Most of the omitted lines are too faint to be of astrophysical importance.

[1] Russell, Unpublished material.
[2] Meggers, *Journ. Opt. Soc. Am.* **31**, 39 (No. 1), 1941.
[3] April 1941.

34. Intensity.

Column three contains the estimated laboratory intensity. It has been included only because of persistent requests. The intensities must be used with great caution not only because of the glaring lack of homogeneity in the estimates, but also on account of the difference in the intensity scales used by various investigators.

For each spectrum the writer has tried to adopt the best existing set of estimates made by a good observer who has covered a long range of wave-length. In the red, the intensities by Meggers and Kiess have been the first choice. In the visible, the arc intensities by A. S. King are given for arc spectra and for first spark spectra of the rare earths. For other spark spectra, spark intensities have been used.

When the intensities of the lines of a spectrum are taken from one or two main references they are not given in parentheses. If only a few intensities are from one source, or if the listed ones are probably on a very different scale from the majority used for a spectrum, parentheses are used. In general, the parentheses denote that the intensity is not the first or second choice. Table 8, Page xxvi, gives the references from which the intensities have been taken. The reader is warned not to assume that the wave-length and intensity come from the same reference. This may be the case, but frequently it is not.

The intensity column contains several types of notes discussed below under entries A to G:

A The letters used to describe the intensities are as follows:

d Double
g Ghost; g coin Ghost coincident; gn Ghost near
l Shaded to longer wave-length [1]
n Diffuse (without structure) or hazy
N Very diffuse (without structure) or very hazy
p Part of band
r Narrow self-reversal
R Wide self-reversal
s Shaded to shorter wave-length (noted by "v" or "ny" in some papers)[1]
tr Trace
w Wide (fine structure type), broad or complex
W Very wide (fine structure type) or very broad

B The intensity column is often blank for predicted lines because most of them have not been observed in the laboratory. If the predicted position is assumed to be more accurate than the measured one, the laboratory intensity is given with a predicted wave-length.

C A dash indicates that the line is so faint that no laboratory intensity has been assigned, except for *H*, *D* and *He* II, where no intensities are listed.

D "Forb" indicates that the line is forbidden but has been observed in the laboratory. Lines due to Stark Effect are thus marked.

E Familiar "names" of selected lines are included:

Series Names:

H	Hα, Hβ etc.
D	Dα, Dβ "

Fraunhofer Names:

He I	D_3
Na I	D_1 and D_2
Ca II	H and K

F When an important line is masked, "m" precedes the wave-length, the predicted position of the masked line is given, and the spectrum to which the masking line belongs, is noted by the chemical symbol in the intensity column. The Roman numerals have been omitted except for masked lines of *Fe* III. If for example "*Fe*" or "*Ti*" appears in the intensity column, the line in question is masked by *Fe* I or *Ti* I the "I" being omitted because of the limited space in this column. Similarly, a "+" is mostly used for first spark spectra in place of "II," although the conventional use of Roman numerals is fully recognized.

[1] Recommended by the International Astronomical Union—*Trans. Intern. Astr. Union* 6, 100, 1938.

G Symbols in the intensity column:

* Blended Intensity

⊙ Predicted line of *Fe* I present in the solar spectrum; ⊙? denotes that the solar identification as *Fe* I is subject to some question.

35. Columns four and five give the low and high excitation potentials (E P) of the levels involved in the production of the line (see § 27). Some E P's are given in parentheses in the R M T to denote that they are not accurately known.

In analyzing a spectrum it often happens that two or more sets of terms of different multiplicity exist that are unconnected, since no intersystem combinations have been detected. If long series, whose correctness is unquestionable, can be found, the limits furnish a fairly accurate determination of the relative positions of the different types of terms. This is the case for *Be* I, *B* II, *C* III, *O* III, and *O* IV, but no symbol has been introduced to indicate that intersystem combinations have not been observed.

The limits are less accurate for *N* II, *N* IV, *O* II, *O* V and *F* II. The E P's affected by this are in parentheses.

For *Ce* II, two sets of terms are well known but they are unconnected. For this reason the lines are listed in two Groups, I and II. Within each group the relative values of the E P's are correct, but the terms in Group I are believed to be lower than those in Group II by about 0.6 volt.[1] In Group II all values are, therefore, enclosed in parentheses.

For *Ce* III parentheses are used because the lowest level may not have been found.

For *Si* II, *P* III and *Mn* II some terms are established by their internal separations, but are entirely unconnected with the rest of the terms. Here the E P columns contain question marks.

In the earlier Multiplet Table all E P's were obtained by multiplying the term values in cm^{-1} by the factor 0.00012345. An improved value of this factor, 0.00012336, was published by Birge[2] in 1929. Since then he has announced that 0.00012395 is more nearly correct[3]. This last change deserves serious consideration—it involves a change in "e", the charge on the electron, which will doubtless be carefully checked experimentally in the near future. The change is surprisingly large and affects many calculations of an astrophysical nature.

Although it is wrong, in principle, to perpetuate the use of an incorrect value of a fundamental physical constant, the old value 0.00012345 has been used throughout the R M T in calculating the E P's (and I P's for which the limits were known. See § 23). The reason is threefold:

1. The errors in stellar temperatures and other quantities based on observational data far exceed those introduced by the change in this factor.

2. Until a definitive value of the constant is available it has seemed an unjustifiable expenditure of time and money to revise the extensive calculations, many of which had already been done with the oldest value.

3. The change in the value of "e" enters into so many calculations, that to recalculate the E P's and I P's is far from sufficient. As soon as the new value is confirmed without likelihood of further change, it should be used in *all* calculations of astrophysical importance.

The last two columns contain J-values and Multiplet Designations. These have already been discussed in § 28, but a few comments are in order. When levels of a term are so close that they are unresolved, all the J-values for the term should be listed. This is impossible because of limited space, and consequently the column headed J is frequently blank or has the J-value of only one level entered.

The multiplet numbers which appear in parentheses under the Multiplet Designation are reference numbers to be used in locating any line. (See §6). In each spectrum the numbers start with "1." All lines in a multiplet have the same multiplet number. These numbers are entered in the Finding List.

VII. SPECTROSCOPIC NOTATION

The notation used in the column headed "Multiplet Designation" differs for spectra which contain conspicuous series and for the complex spectra which do not.

A. *Series Spectra*

36. For many elements the spectra become more complex as the degree of ionization decreases. The terms of each spectrum are the parent terms or "limits" of the terms in the spectrum of the next lower degree of ionization. The addition of s, p, d, f, etc. electrons to each limit produces arrays of terms accurately predictable from theory.

[1] Harrison, Albertson and Hosford, *Journ. Opt. Soc. Am.* **31**, 439 (No. 6), 1941.
[2] *Phys. Rev. Suppl.* **1**, 62 (No. 1), 1929.
[3] *Rev. Mod. Phys.* **13**, 237 (No. 4), 1941; *Reports on Progress in Physics* **8**, 131, 1941.

The simplest case is illustrated by *O* VI. Here the lowest term of *O* VII, $1s^2\ {}^1S$, is so much lower than any other that no other limit need be considered. The addition of a "running" s, p, d, f . . . electron to this state produces series of doublet S, P°, D, F° . . . terms in *O* VI. In this case the electron and the terms are of the same type. For example, the ground term of *O* VI is $1s^22s\ {}^2S$, and the next term $1s^22p\ {}^2P^\circ$. The term type and total quantum number of the running electron suffice to define the configuration. In the R M T the notation 2^2S, 2^2P° etc. is used in spectra of this type. To illustrate, Multiplet No. 1 of *Li* I has the designation 2^2S–2^2P°. (Other features of the notation are discussed in §28 and in Table 3).

The case of *O* V is more complicated because 2^2P° of *O* VI is not much higher than 2^2S and terms from both limits are important. The addition of a running electron to these limits gives the following terms:

O VI	Limit	$1s^22s$	${}^2S$		$1s^22p$	${}^2P^\circ$					
O V	Added Electron	Config	Terms		Config	Terms					
	3s	$1s^22s3s$	${}^1S$	${}^3S$	$1s^22p3s$	${}^1P^\circ$		,	${}^3P^\circ$		
	3p	$1s^22s3p$	${}^1P^\circ$	${}^3P^\circ$	$1s^22p3p$	${}^1S$	${}^1P$	${}^1D$,	${}^3S$	${}^3P$	${}^3D$
	3d	$1s^22s3d$	${}^1D$	${}^3D$	$1s^22p3d$	${}^1P^\circ$	${}^1D^\circ$	${}^1F^\circ$,	${}^3P^\circ$	${}^3D^\circ$	${}^3F^\circ$

The configuration is $1s^22s^2$ gives only ${}^1S$; and $1s^22p^2$ only ${}^1S\ {}^1D\ {}^3P$.

It appears from this array that if the terms having the limit 2^2S in *O* VI are labeled 3^1S, 3^3S, 3^1P°, 3^3P°, 3^1D, 3^3D, and those from 2^2P° are labeled $3s^1P^\circ$, $3s^3P^\circ$, $3p^1S$ . . . . $3d^1P^\circ$ no ambiguity occurs. This notation has been adopted in the R M T for a number of spectra in which two limits, one odd and one even, had to be considered.

When two or more of the effective limits are all even or all odd an addition to this notation is necessary. For terms derived from the lowest of such a group of limits, the running electron is given as before; for those derived from the next higher limit a prime is affixed; and for those from the limit above this a double prime. Where the lowest limit is an S term, the type of the electron and of the term itself are the same, and the former is omitted. For example, the limiting terms in *O* II are ${}^4S^\circ$, ${}^2D^\circ$ and ${}^2P^\circ$ in order. The addition of a 3p electron to these gives (among others) the terms in *O* I here called 3^5P from ${}^4S^\circ$, $3p'\ {}^3D$ from ${}^2D^\circ$ and $3p''\ {}^3D$ from ${}^2P^\circ$.

In several spectra there remain terms which cannot be described by this scheme: but it has been found possible to give a special abbreviated form of the configuration notation, etc. which make their nature intelligible to one versed in the theory of spectral structure.

There is at present no general agreement regarding the use of abbreviated notation of this sort. The notation here adopted has been largely influenced by the limitations of the photographic process—and is not presented as an ideal system—but it illustrates the glaring need for the preparation and general adoption of a better one.

37. Special Cases.

The notation used in the R M T for *Ne* I, *Na* II, *A* I, *K* II and *Ca* III deserves special mention. Paschen's notation formerly used for spectra of this type defined the total quantum number and the type of electron, but introduced subscripts that were not inner quantum numbers. A revised notation which is given in detail by Bacher and Goudsmit [1] is adopted here. The levels with "s" electrons were called by Paschen s_2, s_3, s_4 and s_5; those with "p" electrons were p_1 to p_{10} etc. In this book the subscripts used by Paschen have been omitted but the rest of his notation is retained with numbers assigned to the levels, in order of increasing values for the lowest group of levels of each type. All the members of a series have the same number, but with this arrangement homologous levels which have the same J-values for different elements are not always assigned the same index number. *Ne* I illustrates the changes:

Ne I Notation

Paschen	Revised	Paschen	Revised
		. . . . .	. . . . .
$3s_5$	3s 1°	. . . . .	. . . . .
$3s_4$	3s 2°	$4d_6$	4d 1°
. . . . .	. . . . .	$4d_5$	4d 2°
$3p_{10}$	3p 1	$4d'_4$	4d 3°
$3p_9$	3p 2	$4d_4$	4d 4°
$3p_8$	3p 3	. . . . .	. . . . .

[1] Atomic Energy States, McGraw Hill, New York, London, 1932.

Most of the levels for spectra of this type are not grouped into terms and consequently multiplets in the ordinary sense cannot be listed. Arbitrary groups of lines have been formed and numbered to facilitate the search for a given line. In *Ne* I for example, all important lines from the level 3s 1° combining with "3p" levels have multiplet number 1; those from 3s 1° combining with 4p levels have multiplet number 2 etc.

B. Complex Spectra

38. In the majority of complex spectra the terms are so numerous that it is impracticable to designate them by their configurations. For these spectra the prefixes a, b, c, d are assigned to the low terms of each type and z, y, x etc. to those which combine with them. In *Fe* I, for example, the lowest ^3F term is a^3F, the next higher one b^3F etc. There are ten $^3G°$ terms. They are labeled $z^3G°$, $y^3G°$ . . . . . $q^3G°$. In Multiplet No. 449 the designation is b^3G-$t^3G°$. Here the low term is the second ^3G term as indicated by the prefix "b". The high term is the seventh odd ^3G term, as indicated by "t".

39. In many complex spectra it is impossible to group all known levels into spectroscopic terms. These miscellaneous levels are assigned numbers, and the superscript "°" if they belong to the odd set. Many combinations between terms and miscellaneous levels are given in the R M T and assigned multiplet numbers. For example, the designation of multiplet number 450 of *Fe* I is b^3G–12°.

Numbered levels are numerous in spectra of the rare earths. The arrangement is similar to that described in § 27, i.e. the lines from a given low term are listed in order of increasing E P of the numbered levels.

In *Sm* II only the low levels have been grouped into terms. All high levels are numbered odd levels. In the R M T the combinations of the separate components of the low terms with arbitrarily grouped odd levels are assigned multiplet numbers. For example, the combinations of $a^8F_{1/2}$ with the levels labeled 1°, 2°, 5°, 23°, 35°, 37° have multiplet number 1. The E P's increase for the various groups similarly to those in spectra with regular terms, as discussed in §27.

VIII. SPECIAL NOTES ON INDIVIDUAL SPECTRA

40. *H*, *D*, *He* II — The wave-lengths listed for these spectra have been calculated for the center of gravity of the lines, taking into account the fine structure, and using the values of R_H, R_D and R_{He} respectively, given by Birge in 1941 [1]. These computations were made by Dr. J. E. Mack for inclusion here. The writer is deeply indebted to Dr. Mack for his cordial cooperation in furnishing this unpublished material.

No intensities have been included for these spectra.

O II — Improved term values are needed. The writer has constructed the multiplets from Edlén's term list. Measures by different investigators are discordant, and considerable editing has been done, especially in the interpretation of blends.

For the sextet terms the configuration in abbreviated form is used to indicate that the terms are from the high limit $sp^3\ ^5S°$ in *O* III, namely: $sp^33p\ ^6P$, $sp^33d\ ^6D°$, $sp^34s\ ^6S°$.

Na I — The fine structure components of D_1 and D_2 have been measured with the interferometer by Meissner and Luft [2], as follows:

	D_1	D_2
	5895.9316	5889.9579
	5895.9103	5889.9380
Center of Gravity	5895.9236	5889.9504

The measures listed in the R M T are taken from a source where the lines appeared as impurities, since it was thought that for astrophysical purposes these measures might be preferable to those of the fine structure components.

The two lines λ11403 and λ11381 were also measured as impurities.

Improved laboratory intensities are needed for *Na* I.

[1] *Rev. Mod. Phys.* **13**, 233 (No. 4), 1941.
[2] *Ann. der Phys.* (5) **29**, 698, 1937.

Na II The changes made in the Paschen notation for *Na* II have been discussed in § 37. Some *terms* are also known in this spectrum, and two types of notation appear. The lines are listed in order of increasing low level and these *levels* combine with the *terms*. Although no complete multiplets are listed, multiplet numbers have been assigned as usual. For example, multiplet No. 17 is 3p 9–4s^{3}P°. In spectra of this type no attempt has been made to indicate omitted lines by the use of a "†". The "List D" indicates that only the leading lines are listed.

Mg I Two sets of series, 3^{1}D–^{1}F° and 3^{3}D–^{3}F° have been extended by the use of infra-red solar wave-lengths from Babcock's Table (see § 15)[1]. This has been done on the assumption that the ^{1}F° and ^{3}F° terms are coincident, as Paschen suggested for the first members of the series. The predicted wave-lengths in the R M T are obtained from solar term values. The series appear to be so well confirmed that the solar wave-lengths are preferable to the predicted ones, but for uniformity, no exception has been made for these series lines of *Mg* I.

In Multiplets 7, 8 and 9 the J-values and designation apply to all three lines entered. In each case singlet combinations are involved. Normally one one line is observed in a combination of this type, but the fine structure components of each line are listed.

Al II The G and H terms given by Paschen and Ritschl[2] are in both cases assumed to be coincident singlet and triplet terms. When combinations of these terms with singlet terms are listed in the R M T, ^{1}G or ^{1}H° has been used in place of ^{1,3}G or ^{1,3}H°. Similarly, the last three entries are given as singlet combinations, but in reality they are probably singlet and triplet combinations. Double multiplicities for unresolved terms have not been used in the R M T.

Si II Owing to the use of the photographic method of publication, it has been impossible to add lines without retyping one or more pages. One predicted multiplet of *Si* II has been omitted which should possibly have been inserted.

I A	Ref	E P Low	E P High	J	Multiplet Desig
4075.81	P	9.80	12.82	2½–1½	3^{2}D–5^{2}P°
4077.09	P	9.79	12.82	1½– ½	
4073.05	P	9.79	12.82	1½–1½	

P III The multiplets are listed slightly out of order, but it was thought unnecessary to retype the page on this account.

S II The measures by different observers are very discordant. This spectrum needs thorough observation. Accurate wave-lengths, intensity estimates and term values, and further analysis are desirable.

A II This spectrum is fairly well analyzed but needs careful editing before a definitive analysis can be published. Rosenthal[3] has measured many lines and from his measures alone a consistent set of term values could probably be calculated. The lists of classified lines are not homogeneous and a larger residual in the observed minus calculated wave number must be permitted than for most spectra. The multiplets listed in the R M T appear to be fairly satisfactory in spite of the inaccurate term values.

One term, labeled a^{2}P by de Bruin is puzzling because it has no configuration assignment. It has been retained, but needs to be checked carefully when the analysis is carried further. This is the only case where both the running electron notation and the prefix "a" appear in a given spectrum.

Ca I *Ca* II Although the analyses of these spectra are almost completed, the spectra require further laboratory observation. Accurate wave-lengths, especially of the fainter lines are urgently needed. It is surprisingly difficult to obtain accordant term values. The interferometer measures made at Allegheny furnish an excellent starting point, but these spectra still invite the attention of the laboratory investigator, from the violet through the infra-red.

[1] Babcock and Moore, *Ap. J.* **101**, 374, 1945.
[2] *Ann. der Phys.* (5) **18**, 867, 1933.
[3] *Ann. der Phys.* (5) **4**, 49, 1930.

Sc II Multiplet No. 9. Enter intensity 2 for λ3923.503.

41. *Fe* I The rigorous arrangement of multiplets described in § 27 applies only approximately to *Fe* I. In this spectrum the multiplet numbers reach 1352 but this figure is not definitive. Owing to an extension of the analysis which altered some term assignments, a number of multiplets were rearranged after the lines and multiplet numbers had been entered and checked in the Finding List.

All the revisions were entered in the R M T. For unchanged multiplets the original multiplet numbers were retained. The revised multiplets were inserted as nearly as possible in the correct place and assigned the available numbers, or to avoid duplication, a number followed by "a". As a result of these changes the multiplets do not always have consecutive numbers and some numbers are omitted. The renumbering of all the multiplets entailed so many changes in the Finding List that it was not undertaken.

In three multiplets of *Fe* I, Nos. 3, 7 and 81, an "R" is entered under the multiplet number. A line has been inadvertently omitted from each of these multiplets. The omitted lines are listed on page 65 at the end of the *Fe* I multiplets, and preceding the list of unclassified lines.

In multiplet No. 78, columns one and two, λ3497.137 V should read 3497.15 P.

Multiplet No. 1151 should be rejected; λ4618.568 is erroneous.

Ni I Attention has been called to the fact that the intensities in Multiplet No. 62 are not so abnormal as indicated here. It has been impossible to insert revised estimates.

Rh II The use of the symbol "†" to denote omitted lines has not been checked owing to the lack of a complete line list. It has been assumed from the term lists that the fainter members of the multiplets thus marked have been observed.

Ce II The lack of connection between Groups I and II has been mentioned (§ 35). It is assumed that the terms in Group I are the lower set.

The prefixes a, b and c etc. have been assigned to the low set of terms of each Group. There can be no ambiguity because in Group I the low set is even, while in Group II it is odd.

W II All the miscellaneous levels published by Laun [1] have been numbered in order. These numbers are used in the R M T in place of Laun's notation.

IX. SPECTRA OMITTED FROM THE R M T.

These may be grouped in several general classes.

42. Spectra of probable astrophysical importance for which there is no analysis to date.

These spectra are mentioned in the R M T in the appropriate place with the remark "No Analysis" and the date. If A. S. King has assigned a Temperature Class to the lines, this fact is noted. For example: page 86, *Ce* I No Analysis May 1942 (Temperature Class). The spectra in this class are listed in Table 5.

TABLE 5

SPECTRA OMITTED FROM R M T

NO ANALYSIS

Spectrum	Ref. to Temp. Class	Spectrum	Ref. to Temp. Class
Ce I	215	Dy I	217
Pr I	215	Dy II	217, 229
Nd I	219	Ho I	217
Tb I	217	Ho II	217
Tb II	217	Th I	123

All but *Th* I have been observed by A.S. King. The bibliography numbers of the references to the work on temperature classification are entered in column two.

[1] *Bur. St. Journ. Res.* **21**, 207 (RP 1125), 1938.

43. Analyzed spectra having lines observed in the visible region, but omitted from the R M T as unimportant astrophysically.

These spectra are mentioned in the R M T with the remark "See Introduction". They are listed in Table 6 with numbers from the bibliography referring to the papers on analysis.

TABLE 6

SPECTRA OMITTED FROM R M T

NOT OF ASTROPHYSICAL INTEREST

Spectrum	Ref. to Analysis	Spectrum	Ref. to Analysis	Spectrum	Ref. to Analysis
B I [1]	16, 89	Rb II	238	Cs II	309, 405
F IV	84	Pd II	384, 24	Ta II	192
F VI	83, 87	Ag II	383, 24	Pt II	387
Cl IV	31, 32	Cd II	372, 401	Au II	324
Ga II	376	In II	317	Hg II	313
Se II	244	Sb II	236	Tl II	106
Br I	194	I I	107, 69, 325	Pb II	80
Br II	232	I II	232	Bi II	64, 115
Kr I	274, 276, 165	Xe I	156	Rn I	329
Kr II	53	Xe II	155	Th III	54

The low abundance of these elements in celestial sources, and the high E P of the lines in the visible region have been the determining factors for omission.

44. There are three types of spectra for which little or nothing is known:

Er, *U*. Lines have been observed in spectra of these elements, but the spectra of various degrees of ionization have not been separated.

Te II, *Re* II, *Os* II, *Ir* II, *Po*, *Ac*, *Pa*. The writer has found no references to work on these spectra.

Ma, *Il*, 85, 87. There is nothing known about these elements. It appears doubtful whether they have been successfully isolated.

No reference is made in the body of the R M T to those spectra whose leading lines are in the region to the violet of λ2950, since this is a book designed for astrophysical use. Selected spectra of this type are included in the section dealing with Forbidden Lines (see § 45 and pp. 100–110).

X. FORBIDDEN LINES

45. The author of a "Multiplet Table of Astrophysical Interest" published in 1945 is obliged to consider the probable importance of the forbidden lines of *all abundant* elements. This is indicated by the work of Bowen on nebular lines, of Edlén on coronal lines, and of Swings, Merrill and others on various astronomical spectra.

Following the body of the R M T is a Table of Forbidden Lines of Astrophysical Interest (pp. 100–110). This Table is arranged in detail similarly to the R M T. The lines in a multiplet are listed by diagonals and the multiplets are listed in the order described in § 27. In order to avoid duplication, all multiplets of forbidden lines have an "F" following the multiplet number, 1F, 2F etc. Unlike the R M T, the headings for each spectrum contain only the name of spectrum and the I P. No grading of analysis or list has been attempted and no date of completion of the manuscript is given. All of this section has been written between January and May 1945.

In preparing this manuscript the writer has been most cordially assisted by Dr. Swings. He has edited the lists and offered many valuable suggestions concerning the limitations of the Table. No explicit statement can be made as to the principles of selection adopted, but severe restrictions have been necessary in complex spectra because of the great array of possible forbidden transitions. For simple spectra only a limited number of transitions occurs, but as the complexity increases the number increases rapidly. The general principles followed are:

A Only transitions from metastable states are forbidden. Consequently only the lowest terms in a spectrum are considered.

[1] Lines of B I have not been observed in the visible, but should exist.

B The lists are restricted to multiplets involving likely combinations as regards multiplicity and azimuthal quantum numbers, except for those in which the lowest terms are involved. In *Fe* II, for example, many more combinations and more unlikely combinations from the lowest term, a^6D are listed than from higher terms.

C Transitions involving $\Delta J = \pm 2$ as well as $\Delta J = 0$ or ± 1 are listed for the multiplets most likely to be important.

D The high E P is limited to about 4.0 for the most abundant elements and to about 3.5 for arc spectra of these elements.

E The lists have been extended to include lines that may be important in the red and infra-red. Forbidden lines of neutral atoms are included only for the most abundant elements.

The multiplets listed must be interpreted with caution, because of these restrictions. If complete multiplet arrays are written up from Table 3, lines omitted from any multiplet among the forbidden lines can be detected. Those interested in longer lists must construct them from the term lists given in the papers on the analysis of each spectrum (Table 10 p. xxix).

The great majority of forbidden lines are predicted from the term values. If accurate *measures* have been obtained, they are entered with a letter indicating the source, as follows:

N	Nebular	*N* II, *O* II, *O* III, *Ne* III, *Ne* V, *S* II
L	Laboratory	*O* I
A	Auroral	*O* I
C	Coronal	Entered under the predicted positions of lines of highly ionized *Fe* and *Ni*

When term values permit, the wave-lengths of predicted lines have been calculated to two decimal places. For some spectra the term values are not accurately known, but the internal separations are well established. For these the position is given to 0.1 A. For the most inaccurate wave-lengths no decimals are recorded and in very dubious cases a "?" follows the wave-length.

Some I P's and some predicted wave-lengths have been obtained by interpolation or extrapolation along the isoelectronic sequences. These are:

Term				I P	
Sp	Term	Sp	Term	Sp	Sp
Cl II	^1S	Ca VII	^1S	Ca V	Fe X
S XII	^2P	Ca XV	^3P	Sc VI	Fe XI
A III	^1S	Fe XV	$^3P^\circ$	V VIII	Fe XIII
A XI	^3P	Ni XII	$^2P^\circ$	Cr VIII	Fe XIV
A XIV	$^2P^\circ$	Ni XIII	^3P, ^1D	Cr IX	Fe XV
K V	$^2P^\circ$ $^2D^\circ$	Ni XV	^3P	Mn IX	Co XI
K VI	^1S	Ni XVI	$^2P^\circ$	Mn X	Ni XIII
					Ni XV

As in the body of the R M T, E P's in parentheses denote that the terms involved do not have observed connections with the rest of the terms of the spectrum.

Dr. Swings has pointed out that forbidden lines are essentially emission lines, and therefore, astrophysically the high E P is the important one. For this reason the multiplets of a spectrum should be listed by high E P rather than by low E P (§ 27). It is fully recognized that emission lines are better handled in this order and it is hoped that all multiplets having the same high term can be readily selected in any spectrum. The arrangement by low terms has been adopted merely for the sake of uniformity.

Another highly significant comment has been made by Dr. Swings [1], namely, that "certain forbidden transitions that are not directly observable may play a role in astronomy, for example, by flourescence excitation, ionization or dissociation."

[1] Letter, May 1945.

The importance of lines in the extreme violet such as λ303.7 of *He* II, λ303.7 and λ374.4 of *O* III and the pair at λ374.4 of *N* III, in producing the nebular lines has been fully discussed by Bowen [1]. The violet limit, λ2950, imposed in this book has excluded both permitted and forbidden lines in the violet that are extremely important in the interpretation of forbidden lines observed in astronomical spectra. Readers are, therefore, urged to consult the individual papers on this subject, as it has been regarded as beyond the scope of the present work.

XI DETAILS OF PUBLICATION

The preparation of the manuscript of this book has covered such a long period of time that the typing has been done as various spectra were finished, which is not in the order of increasing atomic number. It has been practically impossible to terminate every section of the manuscript at the end of a typed page. Some important insertions have also broken the continuity of typing. Consequently, the pages are frequently unequal in length and some have large gaps. No serious effort has been made to avoid irregularities of this kind, for two reasons: first, the retyping and rechecking of these large pages in order to adjust spacing has seemed an unjustifiable procedure, particularly since there is always the chance of introducing new errors in handling so much tabular data; second, the blank spaces may prove to be useful for notes.

Doubtless there are more serious irregularities, namely inconsistencies in notation of similar spectra. During the course of the work the manuscript has been widely distributed to interested investigators. To date it has never all been assembled in one place. The writer has been unable to remember all the details connected with each spectrum, but has proceeded on the assumption that minor irregularities would not impair the value of the R M T so seriously as the delays required to correct all of them.

46. One of the purposes of this book has been to provide adequate material for fairly definitive identifications of solar lines. Mention has been made of the forthcoming publication by Babcock and others on the Infra-Red Solar Spectrum λλ6600–13495 (§§ 7, 15). A similar program covering the violet solar spectrum is being carried on at Mount Wilson by Babcock. The writer has been working on the identifications of the solar lines throughout the entire solar spectrum, with the aid of the manuscript of the R M T. The publication of the results to the violet of λ6600 has been postponed in order to complete the present book. It is planned to publish them as soon as possible.

XII. BIBLIOGRAPHY

Following the text is a Bibliography in which all references used in the preparation of this book are listed in the alphabetical order of the names of the authors. Each reference is assigned a number for purposes of cross reference.

47. In the R M T (excluding the section on Forbidden Lines) each spectrum has three sets of references: one giving the sources from which the wave-lengths have been taken—Table 7; one giving the first, second, etc. choices of references for intensity estimates—Table 8; and one referring to papers on analysis—Table 9.

The Tables are arranged similarly. In each, the first column gives the chemical symbol of the element and the spectrum (I = arc, II first spark etc.), the second the number with which to enter the Bibliography. In Table 7 the letters A, B, C, etc. are taken from column 2 of the R M T for each spectrum. In Table 8 the first choice for intensity is indicated in column one, the second in column two etc. In general, reference numbers are in italics when the intensities from the reference are in parentheses in the R M T (see § 34). Table 9 does not list choices. It contains references to papers on analysis that were used in compiling the R M T.

Table 10 gives the sources used for analysis of spectra contained in the Table of Forbidden Lines. It is arranged similarly to Table 9.

Following the Bibliography are an index by pages, and one by elements arranged in the alphabetical order of the chemical symbols.

[1] *Ap. J.* **81**, 1, 1935.

Table 7

References—Wave-Length

Sp	A	B	C	D	E	F
H	243					
D	243					
He I	263	299	319	174	275	
He II	243					
Li I	206	175	149			
Li II	378	404				
Be I	318	315	149			
Be II	318					
B II	81					
B III	81					
C I	185	300	169	160	370	
C II	122	81	89			
C III	81	121				
C IV	81					
N I	93	78	160	370		
N II	20	125	120			
N III	124	81				
N IV	126	81				
O I	98	263	127	116	316	128
O II	20	118	301			
O III	119	86	302			
O IV	81	126	86			
O V	81					
O VI	81					
F I	88					
F II	73					
F III	72	85				
Ne I	162	277	154	276	311	263
Ne II	52					
Na I	149	116	263	298	259	338
Na II	130	393				
Mg I	295	314	141	261	116	
Mg II	116					
Al I	403	315	116	319	310	
Al II	319	377				
Al III	312					
Si I	186					
Si II	117					
Si III	117					
Si IV	117	101				
P I	180					
P II	133	181	70			
P III	133					
P IV	133					
P V	133					
S I	297	129				
S II	157	19	158	25	136	
S III	157	159				
S IV	303					
Cl I	182					

Sp	A	B	C	D	E	F	G	H	I	J	K	L
Cl II	195											
Cl III	31	27										
A I	277	154	263									
A II	340	18	48	47								
A II	49	51										
A IV	50											
K I	149	403	263	259	88	116	108	380				
K II	46											
K III	47a	51a										
Ca I	403	66	259	369	373	241	374					
Ca II	168	403	66	375	390							
Ca III	11											
Sc I	245	253	349									
Sc II	245	253										
Sc III	172											
Ti I	178	65	185	282	245	201	212	348	199	172	177	21
Ti II	178	65	245	201	347	172						
Ti IV	364											
V I	264	368	245	242	266	213	109					
V II	266											
Cr I	183	184	245	142	{204, 213}	173						
Cr II	184	245	142	110								
Mn I	260	245	246	131								
Mn II	{67, 68}	245	108									
Fe I *												
Fe II	76	222	55									
Fe III	103	102	222									
Co I	56	282	245	280	71	230	62	147				
Co II	255											
Ni I	282	245	178	143	109	146	280	398				
Ni II	252	245	111									
Cu I	58											
Cu II	137											
Zn I	149											
Zn II	149	319										
Ga I	402											
Ge I	188	245										
Ge II	188	235										
As I	273											
As II	328											
Se I	189											
Rb I	149	333										
Sr I	399	245	116									
Sr II	399											
Y I	254	245										
Y II	254	351	245									
Zr I	197	282										
Zr II	196											
Cb I	283											
Cb II	283											

* See references for Fe I at end of Table 7.

Table 7—Continued

References—Wave-Length

Sp	A	B	C	D	E
Mo I	326	176	113		
Mo II	245	113			
Ru I	245				
Ru II	272				
Rh I	304				
Rh II	150				
Pd I	256	109			
Ag I	149				
Cd I	149	163			
In I	402				
Sn I	265				
Sn II	248				
Sb I	279				
Te I	189				
Cs I	259	149			
Ba I	400				
Ba II	400	245	259	330	
La I	258				
La II	258				
La III	258				

Sp	A	B	C	D	E
Ce II	144	9	245		
Ce III	362				
Pr II	339	245			
Nd II	10	245	219		
Sm I	{221, 4}	{221, 2}			
Sm II	221				
Eu I	223				
Eu II	223				
Gd I	225				
Gd II	225				
Tm I	268				
Tm II	269	{268, 224}			
Yb I	291				
Yb II	291				
Lu I	288				
Lu II	288				
Hf I	287				
Hf II	289				

Sp	A	B	C	D	E
Ta I	200				
W I	22				
W II	239				
Re I	257				
Os I	245				
Ir I	6				
Pt I	109				
Au I	324				
Hg I	396	166			
Tl I	307	109			
Pb I	149	135			
Bi I	214	17			
Ra I	332				
Ra II	331				
Th II	250				

Sp	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	Q	R	S	T	U	V	W	X	Y
Fe I	164	161	278	185	262	282	59	167	14	371	57	281	220	{139, 138}†	280	15	227	77	391	247	55	171	379	†74

† These references have been used for lines to the violet of the range covered in the RMT, but are included for completeness.

Table 8

References—Intensity

Sp	Reference Numbers
He I	263 275 *174 116 319*
Li I	113 *175*
Li II	378 404
Be I	315 318
Be II	318
B II	81
B III	81
C I	185 300 169 *160 370*
C II	81 *122*
C III	81
C IV	81
N I	93 78 *160* 370
N II	20 125 120
N III	124 81
N IV	81
O I	98 263 127 *116 128*
O II	20 118 301
O III	119 86 *302*
O IV	81 *126*
O V	81
O VI	81
F I	88
F II	73
F III	72 85
Ne I	263 276 *311*
Ne II	52
Na I	259 *172 116*
Na II	130 393
Mg I	261 207 *295 314 170*
Mg II	116
Al I	315 116 319 *310*
Al II	319 377
Al III	312
Si I	186
Si II	117
Si III	117
Si IV	117 101
P I	180
P II	133 *181*
P III	133
P IV	133
P V	133
S I	297 *129*
S II	25 19 *136*
S III	157 *159*
S IV	303
Cl I	182
Cl II	195
Cl III	31 27
A I	263 276 *293 294*
A II	340
A III	49 51
A IV	50
K I	259 116 *88 108*
K II	410 *46*
K III	47a 51a
Ca I	207 259 *369 241 374*
Ca II	259 207 *375 390 66*
Ca III	11
Sc I	210 *253 349 367*
Sc II	253 *365*
Sc III	*172*
Ti I	185 282 212 203 *348 199 172*
Ti II	347
Ti IV	364
V I	264 213 204
V II	266
Cr I	183 184 *204 213*
Cr II	184
Mn I	260 209 *131 61 113*
Mn II	67 68 *108*
Fe I	185 282 220 211 202 227 *59 57* *281 280 55 15 77 391 171 74*
Fe II	76 222 *55*
Fe III	103 102
Co I	205 208 282 *280 71 56 230 62 147*
Co II	255
Ni I	208 205 282 *143 109 146 280 398 245*
Ni II	252 382
Cu I	58
Cu II	137
Zn I	149
Zn II	372
Ga I	402 174
Ge I	188 *132*
Ge II	188 *235*
As I	273
As II	328
Se I	189
Rb I	172
Sr I	207 259
Sr II	207 259
Y I	228
Y II	254 *351*
Zr I	228 282 *197*
Zr II	196
Cb I	283
Cb II	283
Mo I	326 176 *113*
Mo II	113
Ru I	251 *109*
Ru II	272
Rh I	105
Rh II	150
Pd I	256
Ag I	389
Cd I	173
In I	402
Sn I	265
Sn II	248
Sb I	279
Te I	189
Cs I	259 *245*
Ba I	207 *259*
Ba II	207 *259 330*
La I	228 *258*
La II	258
La III	258
Ce II	215 *144 9 245*
Ce III	362
Pr II	215 *339*
Nd II	219 *10*
Sm I	221
Sm II	221
Eu I	223
Eu II	223
Gd I	225
Gd II	225
Tm I	268
Tm II	269 268 224
Yb I	291
Yb II	291
Lu I	288
Lu II	288
Hf I	216
Hf II	289
Ta I	200
W I	218 *22*
W II	239
Re I	257
Os I	245
Ir I	6
Pt I	109
Au I	324
Hg I	112 108
Tl I	109
Pb I	109 *271*
Bi I	308 *17*
Ra I	332
Ra II	331
Th II	226

Table 9

References—Analysis

Sp	Reference Numbers	Sp	Reference Numbers
H	243 23 116	S II	157 19 158 25 136
D	243 23	S III	157 159 136 337
He I	16 45 319 263 275 134	S IV	303 27 29
He II	243 23	Cl I	182 193 92
Li I	116 16 206	Cl II	195 96
Li II	16 81	Cl III	31 27
Be I	318 315	Cl IV	31 32
Be II	318	A I	154 276 42 16 293 294
B I	16 89	A II	92 42 48 47
B II	81 89	A III	49 51 42 44 96
B III	81	A IV	42 50
C I	81 300	K I	116 88
C II	81 89	K II	46 28 105
C III	81 89 82	K III	47a 92
C IV	81 82	Ca I	373 369 259 116
N I	104 78 160	Ca II	375 346 390
N II	89 81 125 120	Ca III	28 16
N III	89 81	Sc I	365
N IV	89 81 82	Sc II	365 285
N V	81 82	Sc III	364 392
O I	98	Ti I	348 355 282 185 178
O II	86 81 350 118	Ti II	347
O III	95 81 119 86 302	Ti IV	364
O IV	81 82	V I	286 305
O V	81 82	V II	284
O VI	81 82	Cr I	179 183 187 346
F I	88	Cr II	184
F II	85 73	Mn I	61 79 260 346
F III	85 30 72	Mn II	67 68
F IV	84	Fe I	363a
F VI	83 87	Fe II	75 76 94 139
Ne I	154 41 276 16 311	Fe III	103 102
Ne II	41 52	Co I	363
Na I	298 338 116	Co II	114
Na II	130 393 16	Ni I	352
Mg I	295 296 314 345	Ni II	382 233
Mg II	116 16	Cu I	381
Al I	315 319	Cu II	386
Al II	319 377	Zn I	149 116
Al III	312 16	Zn II	319 372
Si I	186	Ga I	116
Si II	117 29 16	Ga II	376
Si III	117 29	Ge I	188 327
Si IV	117 101	Ge II	188 234
P I	180 335	As I	273
P II	26 335 336	As II	140 328
P III	29 303 336	Se I	343
P IV	29 336	Se II	244
P V	336 40	Br I	194
S I	297 342	Br II	232

Table 9—Continued

References—Analysis

Sp	Reference Numbers	Sp	Reference Numbers
Kr I	274 276 165	Gd I	2 357 358
Kr II	53	Gd II	8 358
Rb I	116	Tm I	270
Rb II	238	Tm II	270 269
Sr I	116 369 399	Yb I	291 359
Sr II	116 259 399	Yb II	291 359
Y I	285	Lu I	288 267
Y II	285	Lu II	288
Zr I	197 282	Hf I	287
Zr II	196	Hf II	289
Cb I	290	Ta I	192
Cb II	290	Ta II	192
Mo I	63 191	W I	237
Mo II	190	W II	239
Ru I	394 145	Re I	257
Ru II	272 292	Os I	1 5
Rh I	395 304	Ir I	6
Rh II	150	Pt I	240 148
Pd I	385	Pt II	387
Pd II	384 24	Au I	324 306
Ag I	388	Au II	324
Ag II	383 24	Hg I	16
Cd I	116 16	Hg II	313
Cd II	372 401	Tl I	116
In I	116	Tl II	106
In II	317	Pb I	16
Sn I	265	Pb II	80
Sn II	248	Bi I	16
Sb I	279	Bi II	64 115
Sb II	236	Rn I	329
Te I	341	Ra I	332 354
I I	107 69 325	Ra II	331
I II	232	Th II	249 250
Xe I	156	Th III	54
Xe II	155		
Cs I	116		
Cs II	309 405		
Ba I	400 344 353		
Ba II	330 400		
La I	366		
La II	366		
La III	366		
Ce II	144 7 9		
Ce III	362		
Pr II	339 356		
Nd II	10		
Sm I	2 4		
Sm II	3		
Eu I	361		
Eu II	360		

Table 10

References—Forbidden Lines

Sp	Reference Numbers	Sp	Reference Numbers	Sp	Reference Numbers
Be I	318 315	Ca VI	33	Fe XIV	97
C I	81	Ca VII	337	Fe XV	90
N I	104	Ca XII	97	Co II	114
N II	81 43 409	Ca XIII	97	Co VI	37
O I	98 13 151	Ca XV	97	Co VII	12
O II	81 409	Sc II	365	Co VIII	60
O III	81 409	Sc III	364	Co XI	92
F II	85	Sc VI	91 231	Ni I	352
F III	85	Sc VII	231	Ni II	382 233
F IV	84	Ti I	348	Ni VII	322
Ne III	41 43 409	Ti II	347	Ni VIII	12
Ne IV	320	Ti III	364	Ni IX	60
Ne V	100 320 35 397	Ti VII	231 91	Ni XII	97
Na IV	393	Ti VIII	231	Ni XIII	97
Na V	393	V II	284	Ni XV	97
Mg VI	393	V III	407	Ni XVI	97
Al VII	393	V IV	406	Cu II	386
Si I	186	V VIII	91	Kr III	152
P I	180 335	Cr I	179 183 187	Sr II	116 259 399
P II	26 335 336	Cr II	184	Y II	285
S I	96 342 33	Cr III	36	Y V	321
S II	157 19 158 25 136 409	Cr IV	36 38	Zr II	196
S III	157 159 136 337	Cr V	406	Zr III	198
S VIII	97 337	Cr VIII	92	Zr VI	321
S XII	97	Cr IX	91	Xe II	155
Cl II	96 195	Mn II	67 68	Xe III	99 153
Cl III	31 27	Mn IV	36	La II	366
Cl IV	31 32	Mn V	34 38	La III	366
A III	96	Mn VI	60	Eu II	360
A IV	42 50	Mn IX	92		
A V	323 334	Mn X	91		
A X	97	Fe I	363a		
A XI	97	Fe II	75 76 94 139		
A XIV	97	Fe III	103 102		
K IV	96 33	Fe V	36		
K V	33	Fe VI	34 38		
K VI	337 408 334	Fe VII	39		
Ca I	373 369 259 116	Fe X	92 97		
Ca II	375	Fe XI	91 97		
Ca V	96 33 91	Fe XIII	97		

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Al III	15	F VI	11	Ne II	12,13	Sr I	78	Ca VII	101	Ne III	100
As I	78	Fe I	48-65	Ni I	74-77	Sr II	78	Ca XII	101	Ne IV	100
As II	78	Fe II	66-69	Ni II	77	Ta I	97,98	Ca XIII	101	Ne V	100
Au I	98	Fe III	69,70	O I	6- 8	Ta II	98	Ca XV	101	Ni I	109
Au II	98	Ga I	78	O II	8, 9	Tb I	95	Cl II	100	Ni II	109
B I	2	Ga II	78	O III	9,10	Tb II	95	Cl III	100	Ni VII	109
B II	2	Gd I	92	O IV	10	Te I	84	Cl IV	100	Ni VIII	109
B III	2	Gd II	92-95	O V	10	Th I	99	Co II	109	Ni IX	109
Ba I	84	Ge I	78	O VI	10	Th II	99	Co VI	109	Ni XII	109
Ba II	84	Ge II	78	Os I	98	Th III	99	Co VII	109	Ni XIII	110
Be I	2	H	1	P I	17	Ti I	26-30	Co VIII	109	Ni XV	110
Be II	2	He I	1	P II	17	Ti II	30-32	Co XI	109	Ni XVI	110
Bi I	99	He II	1, 2	P III	17	Ti IV	32	Cr I	104	O I	100
Bi II	99	Hf I	96	P IV	17	Tl I	98	Cr II	104,105	O II	100
Br I	78	Hf II	96,97	P V	17	Tl II	98	Cr III	105	O III	100
Br II	78	Hg I	98	Pb I	99	Tm I	96	Cr IV	105	P I	100
C I	2	Hg II	98	Pb II	99	Tm II	96	Cr V	105	P II	100
C II	2, 3	Ho I	96	Pd I	83	U	99	Cr VIII	105	S I	100
C III	3	Ho II	96	Pd II	83	V I	32-34	Cr IX	105	S II	100
C IV	3	I I	84	Pr I	89	V II	35-37	Cu II	110	S III	100
Ca I	23,24	I II	84	Pr II	89	W I	98	Eu II	110	S VIII	100
Ca II	24	In I	84	Pt I	98	W II	98	F II	100	S XII	100
Ca III	24	In II	84	Pt II	98	Xe I	84	F III	100	Sc II	101
Cb I	82	Ir I	98	Ra I	99	Xe II	84	F IV	100	Sc III	101
Cb II	82	K I	23	Ra II	99	Y I	78	Fe I	105,106	Sc VI	101
Cd I	84	K II	23	Rb I	78	Y II	78,79	Fe II	107,108	Sc VII	101
Cd II	84	K III	23	Rb II	78	Yb I	96	Fe III	108	Si I	100
Ce I	86	Kr I	78	Re I	98	Yb II	96	Fe V	108	Sr II	110
Ce II	87-89	Kr II	78	Rh I	83	Zn I	77	Fe VI	108	Ti I	101,102
Ce III	89	La I	84	Rh II	83	Zn II	77	Fe VII	108	Ti II	102,103
Cl I	19	La II	84-86	Rn I	99	Zr I	79,80	Fe X	108	Ti III	103
Cl II	19,20	La III	86	Ru I	83	Zr II	80-82	Fe XI	108	Ti VII	103
Cl III	20,21	Li I	2	Ru II	83			Fe XIII	108	Ti VIII	103
Cl IV	21	Li II	2	S I	18			Fe XIV	108	V II	103
Co I	70-73	Lu I	96	S II	18,19			Fe XV	108	V III	103
Co II	73	Lu II	96	S III	19			K IV	101	V IV	103
Cr I	37-43	Mg I	13	S IV	19			K V	101	V VIII	103
Cr II	43-45	Mg II	13,14	Sb I	84			K VI	101	Xe II	110
Cs I	84	Mn I	45-47	Sb II	84	Forbidden Lines		Kr III	110	Xe III	110
Cs II	84	Mn II	47	Sc I	25	A III	101	La II	110	Y II	110
Cu I	77	Mo I	82	Sc II	25	A IV	101	La III	110	Y V	110
Cu II	77	Mo II	82,83	Sc III	25	A V	101	Mg VI	100	Zr II	110
D	1	N I	3- 5	Se I	78	A X	101	Mn II	105	Zr III	110
Dy I	96	N II	5, 6	Se II	78	A XI	101	Mn IV	105	Zr VI	110

H I P 13.54 Anal A List A June 1943

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
6562.817	A	H_α	10.15	12.04	—	$2^2P^o-3^2D$ etc
4861.332	A	H_β	10.15	12.69	—	(1) 4^2D etc
4340.468	A	H_γ	10.15	13.00	—	5^2D etc
4101.737	A	H_δ	10.15	13.16	—	6^2D etc
3970.074	A	H_ϵ	10.15	13.26	—	7^2D etc
3889.051	A	H_8	10.15	13.33	—	$2^2P^o-8^2D$ etc
3835.386	A	H_9	10.15	13.37	—	(2) 9^2D etc
3797.900	A	H_{10}	10.15	13.40	—	10^2D etc
3770.632	A	H_{11}	10.15	13.43	—	11^2D etc
3750.154	A	H_{12}	10.15	13.45	—	12^2D etc
3734.370	A	H_{13}	10.15	13.46	—	$2^2P^o-13^2D$ etc
3721.940	A	H_{14}	10.15	13.47	—	(3) 14^2D etc
3711.973	A	H_{15}	10.15	13.48	—	15^2D etc
3703.855	A	H_{16}	10.15	13.49	—	16^2D etc
3697.154	A	H_{17}	10.15	13.49	—	17^2D etc
3691.557	A	H_{18}	10.15	13.50	—	$2^2P^o-18^2D$ etc
3686.833	A	H_{19}	10.15	13.50	—	(4) 19^2D etc
3682.810	A	H_{20}	10.15	13.51	—	20^2D etc
3879.355	A	H_{21}	10.15	13.51	—	21^2D etc
3676.365	A	H_{22}	10.15	13.51	—	22^2D etc
3673.761	A	H_{23}	10.15	13.51	—	$2^2P^o-23^2D$ etc
3671.478	A	H_{24}	10.15	13.52	—	(5) 24^2D etc
3669.466	A	H_{25}	10.15	13.52	—	25^2D etc
3667.684	A	H_{26}	10.15	13.52	—	26^2D etc
3666.097	A	H_{27}	10.15	13.52	—	27^2D etc
3664.679	A	H_{28}	10.15	13.52	—	$2^2P^o-28^2D$ etc
3663.406	A	H_{29}	10.15	13.52	—	(6) 29^2D etc
3662.258	A	H_{30}	10.15	13.52	—	30^2D etc
3661.231	A	H_{31}	10.15	13.53	—	31^2D etc
3660.279	A	H_{32}	10.15	13.53	—	32^2D etc
3659.423	A	H_{33}	10.15	13.53	—	33^2D etc
3658.641	A	H_{34}	10.15	13.53	—	$2^2P^o-34^2D$ etc
3657.926	A	H_{35}	10.15	13.53	—	(7) 35^2D etc
3657.269	A	H_{36}	10.15	13.53	—	36^2D etc
3656.666	A	H_{37}	10.15	13.53	—	37^2D etc
3656.135	A	H_{38}	10.15	13.53	—	38^2D etc
3645.981	A		10.15	13.54		Limit
12818.05	A	—	12.04	13.00	—	$3^2D-5^2F^o$ etc
10938.09	A	—	12.04	13.16	—	(8) 6^2F^o etc
10049.38	A	—	12.04	13.26	—	7^2F^o etc
9545.974	A	—	12.04	13.33	—	8^2F^o etc
9229.017	A	—	12.04	13.37	—	9^2F^o etc
9014.911	A	—	12.04	13.40	—	$3^2D-10^2F^o$ etc
8862.787	A	—	12.04	13.43	—	(9) 11^2F^o etc
8750.475	A	—	12.04	13.45	—	12^2F^o etc
8665.021	A	—	12.04	13.46	—	13^2F^o etc
8598.394	A	—	12.04	13.47	—	14^2F^o etc
8545.384	A	—	12.04	13.48	—	$3^2D-15^2F^o$ etc
8502.487	A	—	12.04	13.49	—	(10) 16^2F^o etc
8467.256	A	—	12.04	13.49	—	17^2F^o etc
8437.958	A	—	12.04	13.50	—	18^2F^o etc
8413.321	A	—	12.04	13.50	—	19^2F^o etc
8392.400	A	—	12.04	13.51	—	$3^2D-20^2F^o$ etc
8374.478	A	—	12.04	13.51	—	(11) 21^2F^o etc
8359.006	A	—	12.04	13.51	—	22^2F^o etc
8345.553	A	—	12.04	13.51	—	23^2F^o etc
8333.785	A	—	12.04	13.52	—	24^2F^o etc
8323.428	A	—	12.04	13.52	—	$3^2D-25^2F^o$ etc
8314.262	A	—	12.04	13.52	—	(12) 26^2F^o etc
8306.115	A	—	12.04	13.52	—	27^2F^o etc
8298.837	A	—	12.04	13.52	—	28^2F^o etc
8292.309	A	—	12.04	13.52	—	29^2F^o etc
8286.434	A	—	12.04	13.52	—	$3^2D-30^2F^o$ etc
8281.125	A	—	12.04	13.53	—	(13) 31^2F^o etc
8276.310	A	—	12.04	13.53	—	32^2F^o etc
8271.934	A	—	12.04	13.53	—	33^2F^o etc
8267.941	A	—	12.04	13.53	—	34^2F^o etc
8264.288	A	—	12.04	13.53	—	$3^2D-35^2F^o$ etc
8260.938	A	—	12.04	13.53	—	(14) 36^2F^o etc
8257.859	A	—	12.04	13.53	—	37^2F^o etc
8255.153	A	—	12.04	13.53	—	38^2F^o etc
8203.572	A	—	12.04	13.54	—	Limit

D I P 13.54 Anal A List B June 1943

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
6561.032	A	D_α	10.16	12.04	—	$2^2P^o-3^2D$ etc
4860.029	A	D_β	10.16	12.70	—	(1) 4^2D etc
4339.287	A	D_γ	10.16	13.00	—	5^2D etc
4100.621	A	D_δ	10.16	13.17	—	6^2D etc
3968.995	A	D_ϵ	10.16	13.27	—	7^2D etc
3887.993	A	D_8	10.16	13.33	—	8^2D etc
12814.56	A	—	12.04	13.00	—	$3^2D-5^2F^o$ etc
10935.11	A	—	12.04	13.17	—	(2) 6^2F^o etc
10046.84	A	—	12.04	13.27	—	7^2F^o etc
9543.376	A	—	12.04	13.33	—	8^2F^o etc

He I I P 24.48 Anal A List B Jan 1943

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
10830.341	A	2500	19.73	20.87	1-2	$2^3S-2^3P^o$
10830.250	A	1500	19.73	20.87	1-1	(1)
10829.081	A	500	19.73	20.87	1-0	
3888.646	B	{(10) (7) (3)}	19.73	22.91	2, 1, 0 - 1	$2^3S-3^3P^o$ (2)

He I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3187.743	B	(8)	19.73	23.61	—	$2^3S-4^3P^o$ (3)
5015.675	B	(6)	20.53	22.99	0-1	$2^1S-3^1P^o$ (4)
3964.727	B	(4)	20.53	23.84	0-1	$2^1S-4^1P^o$ (5)
3613.641	B	(3)	20.53	23.94	0-1	$2^1S-5^1P^o$ (6)
3447.594	D	(2)	20.53	24.11	0-1	$2^1S-6^1P^o$ (7)
3354.550	D	(2)	20.53	24.21	0-1	$2^1S-7^1P^o$ (8)
3296.788	D	(1)	20.53	24.27	0-1	$2^1S-8^1P^o$ (9)
7065.188	B	(5)	20.87	22.62	2,1-1	$2^3P^o-3^3S$
7065.719	D	(1)	20.87	22.62	0-1	(10)
5875.618	B	(10)D_3	20.87	22.97	2-	$2^3P^o-3^3D$
5875.650	D		20.87	22.97	1-	(11)
5875.989	D	(1)	20.87	22.97	0-	
4713.143	B	(3)	20.87	23.49	2,1-1	$2^3P^o-4^3S$
4713.373	D	(1)	20.87	23.49	0-1	(12)
4517.43	P	Forb	20.87	23.61	2-	$2^3P^o-4^3P^o$ (13)
4471.477	B	(6)	20.87	23.63	2,1-	$2^3P^o-4^3D$
4471.688	D	(1)	20.87	23.63	0-	(14)
4469.92	P	Forb	20.87	23.63	2-	$2^3P^o-4^3F^o$ (15)
4120.812	B	(3)	20.87	23.87	2,1-1	$2^3P^o-5^3S$
4120.993	D	(1)	20.87	23.87	0-1	(16)
4045.16	P	Forb	20.87	23.92	2-	$2^3P^o-5^3P^o$ (17)
4026.189	B	(5)	20.87	23.94	2,1-	$2^3P^o-5^3D$
4026.362	D	(1)	20.87	23.94	0-	(18)
4025.49	P	Forb	20.87	23.94	2-	$2^3P^o-5^3F^o$ (19)
3867.477	D	(2)	20.87	24.07	2,1-1	$2^3P^o-6^3S$
3867.631	D	(1)	20.87	24.07	0-1	(20)
3829.47	P	Forb	20.87	24.10	2-	$2^3P^o-6^3P^o$ (21)
3819.606	B	(4)	20.87	24.11	2,1-	$2^3P^o-6^3D$
3819.761	D	(1)	20.87	24.11	0-	(22)
3819.25	P	Forb	20.87	24.11	2-	$2^3P^o-6^3F^o$ (23)
3732.881	C	(1)	20.87	24.18	2,1-1	$2^3P^o-7^3S$
3732.992	D	(1)	20.87	24.18	0-1	(24)
3705.003	B	(3)	20.87	24.21	2,1-	$2^3P^o-7^3D$
3705.140	C	(1)	20.87	24.21	0-	(25)
3704.79	P	Forb	20.87	24.21	2-	$2^3P^o-7^3F^o$ (26)
3651.971	D	(1)	20.87	24.25	2,1-1	$2^3P^o-8^3S$
3652.119	D	(1)	20.87	24.25	0-1	(27)
3634.235	D	(2)	20.87	24.27	2,1-	$2^3P^o-8^3D$
3634.373	D	(1)	20.87	24.27	0-	(28)
3634.10	P	Forb	20.87	24.27	2-	$2^3P^o-8^3F^o$ (29)
3599.304	D	(1)	20.87	24.30	2,1-1	$2^3P^o-9^3S$
3599.442	D	(1)	20.87	24.30	0-1	(30)
3587.252	D	(2)	20.87	24.31	2,1-	$2^3P^o-9^3D$
3587.396	D	—	20.87	24.31	0-	(31)
3587.16	P	Forb	20.87	24.31	2-	$2^3P^o-9^3F^o$ (32)
3562.950	D	(1)	20.87	24.34	—	$2^3P^o-10^3S$ (33)
3554.394	D	(1)	20.87	24.35	2,1-	$2^3P^o-10^3D$
3554.524	D	(1)	20.87	24.35	0-	(34)
3536.820	D	(1)	20.87	24.36	—	$2^3P^o-11^3S$ (35)
3530.487	D	(1)	20.87	24.37	—	$2^3P^o-11^3D$ (36)
3517.327	D	(1)	20.87	24.38	—	$2^3P^o-12^3S$ (37)
3512.511	D	(1)	20.87	24.39	—	$2^3P^o-12^3D$ (38)
3502.381	D	(1)	20.87	24.40	—	$2^3P^o-13^3S$ (39)
3498.641	D	(1)	20.87	24.40	—	$2^3P^o-13^3D$ (40)
3490.62	D	(1)	20.87	24.41	—	$2^3P^o-14^3S$ (41)
3487.721	D	(1)	20.87	24.41	—	$2^3P^o-14^3D$ (42)
3478.97	D	(1)	20.87	24.42	—	$2^3P^o-15^3D$ (43)
3471.80	D	(1)	20.87	24.43	—	$2^3P^o-16^3D$ (44)
7281.349	B	(3)	21.13	22.82	1-0	$2^1P^o-3^1S$ (45)
6678.149	B	(6)	21.13	22.97	1-2	$2^1P^o-3^1D$ (46)
5047.736	B	(2)	21.13	23.57	1-0	$2^1P^o-4^1S$ (47)
4921.929	B	(4)	21.13	23.63	1-2	$2^1P^o-4^1D$ (48)
4920.35	P	Forb	21.13	23.64	1-3	$2^1P^o-4^1F^o$ (49)
4437.549	B	(1)	21.13	23.91	1-0	$2^1P^o-5^1S$ (50)
4387.928	B	(3)	21.13	23.94	1-2	$2^1P^o-5^1D$ (51)

He I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4168.971	D	(1)	21.13	24.09	1-0	$2^1P^o-6^1S$ (52)
4143.759	B	(2)	21.13	24.11	1-2	$2^1P^o-6^1D$ (53)
4023.988	D	(1)	21.13	24.19	1-0	$2^1P^o-7^1S$ (54)
4009.270	D	(1)	21.13	24.21	1-2	$2^1P^o-7^1D$ (55)
4007.81	P	Forb	21.13	24.21	1-1	$2^1P^o-7^1P^o$ (56)
3935.914	D	(1)	21.13	24.28	1-0	$2^1P^o-8^1S$ (57)
3926.530	D	(1)	21.13	24.27	1-2	$2^1P^o-8^1D$ (58)
3878.180	D	(1)	21.13	24.31	1-0	$2^1P^o-9^1S$ (59)
3871.819	D	(1)	21.13	24.31	1-2	$2^1P^o-9^1D$ (60)
3838.094	D	(1)	21.13	24.34	1-0	$2^1P^o-10^1S$ (61)
3833.574	D	(1)	21.13	24.35	1-2	$2^1P^o-10^1D$ (62)
3805.765	D	(1)	21.13	24.37	1-2	$2^1P^o-11^1D$ (63)
3784.886	D	(1)	21.13	24.39	1-2	$2^1P^o-12^1D$ (64)
3768.81	D	(1)	21.13	24.40	1-2	$2^1P^o-13^1D$ (65)
3756.10	D	(1)	21.13	24.41	1-2	$2^1P^o-14^1D$ (66)
9463.57	C	60	22.62	23.92	—	$3^3S-5^3P^o$ (67)
8361.77	C	(4)	22.62	24.10	—	$3^3S-6^3P^o$ (68)
7816.16	C	(4)	22.62	24.20	—	$3^3S-7^3P^o$ (69)
11012.97	A	30	22.82	23.94	0-1	$3^1S-5^1P^o$ (70)
9603.50	E	6	22.82	24.11	0-1	$3^1S-6^1P^o$ (71)
11969.07	A	20	22.91	23.94	—	$3^3P^o-5^3D$ (72)
10667.60	A	30	22.91	24.07	—	$3^3P^o-6^3S$ (73)
10311.18	C	40	22.91	24.11	—	$3^3P^o-6^3D$
10311.37	C		22.91	24.11	—	(74)
9702.66	E	10	22.91	24.18	—	$3^3P^o-7^3S$ (75)
9516.51	C	30	22.91	24.21	—	$3^3P^o-7^3D$
9516.66	C		22.91	24.21	—	(76)
9063.40	E	6	22.91	24.27	—	$3^3P^o-8^3D$ (77)
10996.55	A	5	22.97	24.10	—	$3^3D-6^3P^o$ (78)
10912.92	A	100	22.97	24.11	—	$3^3D-6^3F^o$ (79)
10072.10	E	2	22.97	24.20	—	$3^3D-7^3P^o$ (80)
10027.73	E	40	22.97	24.21	—	$3^3D-7^3F^o$ (81)
9526.17	E	10	22.97	24.27	—	$3^3D-8^3F^o$ (82)
9210.28	E	6	22.97	24.31	—	$3^3D-9^3F^o$ (83)
10916.98	A	50	22.97	24.11	2-3	$3^1D-6^1F^o$ (84)
10031.16	E	15	22.97	24.21	2-3	$3^1D-7^1F^o$ (85)
9529.27	E	4	22.97	24.27	2-3	$3^1D-8^1F^o$ (86)
11225.83	A	6	22.99	24.09	1-0	$3^1P^o-6^1S$ (87)
11044.95	A	40	22.99	24.11	1-2	$3^1P^o-6^1D$ (88)
10138.50	E	10	22.99	24.21	1-2	$3^1P^o-7^1D$ (89)
9625.80	E	3	22.99	24.27	1-2	$3^1P^o-8^1D$ (90)

He II I P 54.17 Anal A List A June 1943

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4685.682	A	—	48.16	50.80	—	$3^2D-4^2F^o$ etc
3203.104	A	—	48.16	52.02	—	(1) 5^2F^o etc
10123.61	A	—	50.80	52.02	—	$4^2F^o-5^2G$ etc
6560.099	A	—	50.80	52.68	—	(2) 6^2G etc
5411.524	A	—	50.80	53.08	—	7^2G etc
4859.323	A	—	50.80	53.34	—	8^2G etc
4541.59	A	—	50.80	53.51	—	9^2G etc
4338.67	A	—	50.80	53.64	—	$4^2F^o-10^2G$ etc
4199.83	A	—	50.80	53.74	—	(3) 11^2G etc
4100.04	A	—	50.80	53.81	—	12^2G etc
4025.60	A	—	50.80	53.86	—	13^2G etc
3968.43	A	—	50.80	53.91	—	14^2G etc
3923.48	A	—	50.80	53.94	—	$4^2F^o-15^2G$ etc
3887.44	A	—	50.80	53.97	—	(4) 16^2G etc
3858.07	A	—	50.80	54.00	—	17^2G etc
3833.80	A	—	50.80	54.02	—	18^2G etc
3813.50	A	—	50.80	54.03	—	19^2G etc
3796.33	A	—	50.80	54.05	—	$4^2F^o-20^2G$ etc
3781.68	A	—	50.80	54.06	—	(5) 21^2G etc
3644.47	A	—	50.80	54.18	—	Limit

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
He II continued						
11626.40	A	—	52.02	53.08	—	$5^2G-7^2H^o$ etc
9344.93	A	—	52.02	53.34	—	(8) 8^2H^o etc
8236.77	A	—	52.02	53.51	—	9^2H^o etc
7592.74	A	—	52.02	53.84	—	10^2H^o etc
7177.50	A	—	52.02	53.74	—	11^2H^o etc
6890.88	A	—	52.02	53.81	—	$5^2G-12^2H^o$ etc
6683.2	A	—	52.02	53.86	—	(7) 13^2H^o etc
6570.0	A	—	52.02	53.91	—	14^2H^o etc
8406.3	A	—	52.02	53.94	—	15^2H^o etc
6310.8	A	—	52.02	53.97	—	16^2H^o etc
6233.8	A	—	52.02	54.00	—	17^2H^o etc
6170.6	A	—	52.02	54.02	—	$5^2G-18^2H^o$ etc
8118.2	A	—	52.02	54.03	—	(8) 19^2H^o etc
6074.1	A	—	52.02	54.05	—	20^2H^o etc
6038.7	A	—	52.02	54.06	—	21^2H^o etc
5694.46	A	—	52.02	54.18	—	Limit
Wide Fine Structure						

Li I I P 5.37 Anal A List B Jan 1943

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
6707.74 //	A	1000R	0.00	1.84	½-1½	$2^2S-2^2P^o$
6707.89	A		0.00	1.84	½- ½	(1)
3232.81	B	50R	0.00	3.82	—	$2^2S-3^2P^o$ (2)
8128.52	B	(500)	1.84	3.36	—	$2^2P^o-3^2S$ (3)
6103.642	C	500R	1.84	3.86	—	$2^2P^o-3^2D$ (4)
4971.92	B	10r	1.84	4.32	—	$2^2P^o-4^2S$ (5)
4602.99	B	100R	1.84	4.52	—	$2^2P^o-4^2D$ (8)

Li II I P 75.31 Anal A List D Jan 1943

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5483.55 to 5485.85	A	10	58.77	61.02	—	$2^3S-2^3P^o$ (1)
3684.1	B	2	68.48	71.83	—	$3^3S-4^3P^o$ (2)
4156.3	B	0.5	68.98	71.95	0-1	$3^1S-4^1P^o$ (3)
4881.3	B	2.5	69.07	71.60	—	$3^3P^o-4^3S$ (4)
4325.7	B	3	69.07	71.92	—	$3^3P^o-4^3D$ (5)
Very wide fine structure						

Be I I P 9.28 Anal A List C Feb 1943

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3321.347	A	30	2.71	6.43	2-1	$2^3P^o-3^3S$
3321.086	A	20	2.71	6.43	1-1	(1)
3321.013	A	10	2.71	6.43	0-1	
8254.10	B	10	5.25	6.75	1-0	$2^1P^o-3^1S$ (2)
4572.871	C	15	5.25	7.95	1-2	$2^1P^o-3^1D$ (3)
4407.911	B	10	5.25	8.05	1-0	$2^1P^o-4^1S$ (4)
3813.402	B	15	5.25	8.49	1-2	$2^1P^o-4^1D$ (5)
3736.280	B	10	5.25	8.56	1-0	$2^1P^o-5^1S$ (6)
3515.538	B	12	5.25	8.77	1-2	$2^1P^o-5^1D$ (7)

Be II I P 18.13 Anal A List D Feb 1943

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3130.418//	A	50	0.00	3.94	½-1½	$2^2S-2^2P^o$
3131.064	A	30	0.00	3.94	½- ½	(1)
3274.640	A	10	10.89	14.88	—	$3^2S-4^2P^o$ (2)
5270.843	A	12	11.91	14.25	1½- ½	$3^2P^o-4^2S$
5270.322	A	10	11.91	14.25	½- ½	(3)
4381.025	A	10	11.91	14.74	1½-	$3^2P^o-4^2D$
4380.690	A	9	11.91	14.74	½-	(4)
3241.835	A	10	11.91	15.72	1½- ½	$3^2P^o-5^2S$? (5)
4673.462	A	20	12.10	14.75	—	$3^2D-4^2F^o$ (8)

B I See introduction

B II I P 25.02 Anal B List D Fsb 1943

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3451.41	A	10	9.06	12.84	1-2	$2^1P^o-3p^2\ ^1D$ (1)
4121.95	A	7	18.60	21.59	—	$3^3D-4^3F^o$ (2)

B III I P 37.77 Anal A List B Fsb 1943

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4243.60	A	3d	29.98	32.89	—	$4^2P^o-5^2D$ (1)
4487.46	A	5d	30.14	32.89	—	$4^2D-5^2F^o$ (2)
4497.58	A	10d	30.15	32.89	—	$4^2F^o-5^2G$ (3)

C I I P 11.20 Anal B List A March 1943

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
10691.38	A	50	7.46	8.61	2-3	$3s^3P^o-3p^3D$
10683.18	A	25	7.45	8.81	1-2	(1)
10685.44	A	10	7.45	8.80	0-1	
10729.59	A	8	7.48	8.61	2-2	
10707.44	A	8	7.45	8.60	1-1	
10754.09	P		7.46	8.60	2-1	
9658.49	A	2	7.46	8.73	2-1	$3s^3P^o-3p^3S$
9820.86	A	1	7.45	8.73	1-1	(2)
9603.09	A	0	7.45	8.73	0-1	
9094.89	A	25	7.46	8.81	2-2	$3s^3P^o-3p^3P$
9078.32	A	6	7.45	8.81	1-1	(3)
9111.85	A	10	7.46	8.81	2-1	
9088.57	A	8	7.45	8.81	1-0	
9081.48	A	15	7.45	8.81	1-2	
9062.53	A	10	7.45	8.81	0-1	
5041.66	B	3	7.48	9.90	2-3	$3s^3P^o-4p^3D$
*5039.05	B	3	7.45	9.90	1-2	(4)
			7.45	9.90	0-1	
4828.73	B	1	7.46	10.01	2-1	$3s^3P^o-4p^3S$
4817.33	B	1	7.45	10.01	1-1	(5)
4812.84	E	(1)	7.45	10.01	0-1	
4771.72	B	4	7.46	10.04	2-2	$3s^3P^o-4p^3P$
4766.82	B	2	7.45	10.04	1-1	(8)
4775.87	B	3	7.48	10.04	2-1	
4770.00	B	2	7.45	10.04	1-0	
*4762.41	B	4	7.45	10.04	1-2	
			7.45	10.04	0-1	
4085.1	C	2	7.48	10.49	2-3?	$3s^3P^o-5p^3D$
*4084.2	C	1	7.45	10.49	1-2?	(7)
			7.45	10.49	0-1?	
10653.8	D	(50)	7.85	8.81	1-1	$3s^1P^o-3p^3P$ (8)
9405.77	A	20	7.65	8.96	1-2	$3s^1P^o-3p^1D$ (9)
8335.19	A	10	7.65	9.13	1-0	$3s^1P^o-3p^1S$ (10)
5380.242	B	8	7.65	9.95	1-1	$3s^1P^o-4p^1P$ (11)
5052.122	B	6	7.65	10.09	1-2	$3s^1P^o-4p^1D$ (12)
4932.00	B	5	7.65	10.15	1-0	$3s^1P^o-4p^1S$ (13)
4371.33	C	4	7.65	10.47	1-1	$3s^1P^o-5p^1P$ (14)
4352.1	C	1	7.65	10.49	1-2?	$3s^1P^o-5p^3D$ (15)
4268.99	C	2	7.85	10.54	1-2	$3s^1P^o-5p^1D$ (16)
4231.35	C	1	7.65	10.57	1-0	$3s^1P^o-5p^1S$ (17)
5793.51	E	(3)	7.91	10.04	3-2	$2p^3\ ^3D^o-4p^3P$
5801.17	E	(2)	7.91	10.04	2-1	(18)
5805.78	E	(1)	7.91	10.04	1-0	
11330.36	A	1	8.50	9.59	1-2	$3p^1P-3d^1D^o$ (19)
10548.0	E	(60)	8.50	9.87	1-1	$3p^1P-4s^1P^o$ (20)
6828.5	C	0	8.50	10.31	1-2	$3p^1P-4d^1D^o$ (21)
6587.75	C	4	8.50	10.37	1-1	$3p^1P-4d^1P^o$ (22)
*11894.9	D	(200)	8.61	9.65	3-2	$3p^3D-4s^3P^o$
			8.81	9.84	2-1	(23)
11880.4	D	(15)	8.60	9.84	1-0?	
11849.3	D	(10)	8.81	9.85	2-2	
11883.0	D	(15)	8.81	9.64	1-1	
*11754.0	D	(600)	8.81	9.66	3-4	$3p^3D-3d^3F^o$
			8.81	9.88	2-3	(24)
11747.5	D	(300)	8.60	9.65	1-2	
11801.8	D	(10)	8.61	9.66	3-3	
*11687.1	D	(100)	8.81	9.67	3-3	$3p^3D-3d^3D^o$
11831.59?	P		8.81	9.87	2-2	(25)
11609.91?	P		8.60	9.87	1-1	
11878.99?	P		8.81	9.87	3-2	
11838.60?	P		8.61	9.87	2-1	
11819.0	D	(30)	8.81	9.87	2-3	
11602.94?	P		8.60	9.87	1-2	
7118.5	E	(6d)	8.81	10.34	—	$3p^3D-4d^3F^o$ (28)

C I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
13164.1	D	(100)	8.73	9.67	1-1	$3p^3S-4s^1P^o$ (27)
12521.0	D	(30)	8.73	9.72	1-1	$3p^3S-3d^1P^o$ (28)
*11667.1	D	(100)	8.73	9.79	1-2	$3p^3S-3d^3P^o$
11656.0	D	(200)	8.73	9.79	1-1	(29)
12814.8	D	(200)	8.81	9.79	2-2	$3p^3P-3d^3P^o$
*12565.0	D	(30)	8.81	9.79	1-1	(30)
12802.8	D	(40)	8.81	9.79	2-1	
*12585.0	D	(30)	8.81	9.79	1-0	
12582.3	D	(40)	8.81	9.79	1-2	
12551.0	D	(50)	8.81	9.79	0-1	
8018	E	(1d)	8.81	10.35	—	$3p^3P-4d^3D^o$ (31)
7850	E	(1d)	8.81	10.38	—	$3p^3P-4d^3P^o$ (32)

C II I P 24.28 Anal A List A Feb 1943

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4744.90	B	1	13.66	16.26	1½-1½	$2p^2P-3^2P^o$
4738.11	B	0	13.66	16.26	½- ½	(1)
6578.03	A	10	14.39	16.26	½-1½	$3^2S-3^2P^o$
6582.85	A	9	14.39	16.26	½- ½	(2)
7236.19	A	8d	16.26	17.97	1½-2½	$3^2P^o-3^2D$
7231.12	A	7d	16.26	17.97	½-1½	(3)
3920.677	A	10	16.26	19.41	1½- ½	$3^2P^o-4^2S$
3918.977	A	9	16.26	19.41	½- ½	(4)
5889.97	A	4	17.97	20.06	2½-1½	$3^2D-4^2P^o$
5891.85	A	3	17.97	20.08	1½- ½	(5)
4267.27	A	20	17.97	20.86	2½-3½	$3^2D-4^2F^o$
4267.02	A	19	17.97	20.86	1½-2½	(6)
3361.09	A	3	17.97	21.64	2½-1½	$3^2D-5^2P^o$
3361.75	A	2	17.97	21.64	1½- ½	(7)
2992.63	A	5d	17.97	22.09	—	$3^2D-5^2F^o$ (8)
3165.51	A	4	18.57	22.47	2½-1½	$2p^3\ ^2D^o-3p^2P$
3167.95	A	3	18.58	22.47	1½- ½	(9)
3165.99	B	1	18.58	22.47	1½-1½	
5538.0	B	1d	19.41	21.64	½-	$4^2S-5^2P^o$ (10)
5338.7	B	0dd	20.06	22.38	1½- ½	$4^2P^o-6^2S$ (11)
5121.89	A	1	20.06	22.47	1½-1½	$4^2P^o-3p^2P$ (12)
3832.12	B	2d	20.06	23.28	1½-2½	$4^2P^o-3p^2D$
3836.10	B	1d	20.06	23.28	½-1½	(13)
6783.75	A	(6)	20.62	22.44	2½-3½	$3s^4P^o-3p^4D$
6779.74	A	(4)	20.61	22.44	1½-2½	(14)
6780.27	A	(2)	20.61	22.43	½-1½	
6800.50	A	(3)	20.62	22.44	2½-2½	
6791.30	A	(3)	20.61	22.43	1½-1½	
6787.09	A	(2)	20.61	22.43	½- ½	
6812.19	A	(0)	20.62	22.43	2½-1½	
6798.04	A	(1)	20.61	22.43	1½- ½	
5662.51	A	(4)	20.62	22.80	2½-1½	$3s^4P^o-3p^4S$
5648.08	A	(3)	20.61	22.80	1½-1½	(15)
5640.50	A	(2)	20.61	22.80	½-1½	
5145.18	A	(5)	20.62	23.02	2½-2½	$3s^4P^o-3p^4P$
5139.31	A	(1)	20.61	23.02	1½-1½	(16)
5137.26	A	(0)	20.61	23.01	½- ½	
5151.08	A	(3d?)	20.62	23.02	2½-1½	
5143.49	A	(2)	20.61	23.01	1½- ½	
5133.29	A	(2)	20.61	23.02	1½-2½	
5132.96	A	(3)	20.61	23.02	½-1½	
5033.2	B	1d	20.83	23.28	1½-2½	$2p^3\ ^2P^o-3p^2D$
5037.0	B	0d	20.83	23.28	½-1½	(17)
3871.82	B	2	20.83	24.02	1½- ½	$2p^3\ ^2P^o-3p^2S$
3868.84	B	1	20.83	24.02	½- ½	(18)
6115.21	A	0	22.00	24.02	1½- ½	$3s^2P^o-3p^2S$ (19)
*7119.45	A	(2)	22.44	24.17	3½-4½	$3p^4D-3d^4F^o$
7115.13	A	(2)	22.44	24.17	2½-3½	(20)
*7112.36	A	(1)	22.43	24.17	1½-2½	
			22.43	24.17	½-1½	
7133.52	A	(0)	22.44	24.17	3½-3½	
7125.49	A	(0)	22.44	24.17	2½-2½	
*7119.45	A	(2)	22.43	24.17	1½-1½	
6750.22	A	(2)	22.44	24.27	3½-3½	$3p^4D-3d^4D^o$
6738.36	A	(1)	22.44	24.27	2½-2½	(21)
6730.79	A	(0)	22.43	24.27	1½-1½	
*6726.84	A	(0)	22.43	24.26	½- ½	
6754.75	A	(0)	22.44	24.27	3½-2½	
6742.05	A	(0)	22.44	24.27	2½-1½	
*6733.56	A	(0)	22.43	24.26	1½- ½	
			22.44	24.27	2½-3½	
*6728.84	A	(0)	22.43	24.27	1½-2½	

C II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5856.09	A	(2)	22.44	24.55	3½-2½	$3p^4D-3d^4P^o$
5836.31	A	(1)	22.44	24.55	2½-1½	(22)
5823.13	A	(0)	22.43	24.55	1½- ½	
5843.77	A	(0)	22.44	24.55	2½-2½	
5827.80	A	(1)	22.43	24.55	1½-1½	
5817.87	A	(0)	22.43	24.55	½- ½	
3589.67	A	(4)	22.44	25.88	3½-2½	$3p^4D-4s^4P^o$
*3590.87	A	(2)	22.44	25.87	2½-1½	(23)
			22.43	25.87	1½- ½	
3584.98	A	(1)	22.44	25.88	2½-2½	
3587.68	A	(2)	22.43	25.87	1½-1½	
3588.92	A	(1)	22.43	25.87	½- ½	
3581.80	B	0	22.43	25.88	1½-2½	
3585.83	A	(2)	22.43	25.87	½-1½	
8098.62	A	3	22.47	24.50	1½-2½	$3p^3P-3d^2D^o$
6095.37	A	2	22.47	24.50	½-1½	(24)
6102.59	A	0	22.47	24.50	1½-1½	
4964.90	A	2	22.47	24.96	1½-1½	$3p^3P-3d^2P^o$
4954.16	B	1	22.47	24.96	½- ½	(25)
*4959.52	B	0d	22.47	24.96	1½- ½	
			22.47	24.96	½-1½	
7063.4	A	(1n)	22.80	24.55	1½-2½	$3p^4S-3d^4P^o$
7052.9	A	(1n)	22.80	24.55	½-1½	(26)
7045.8	A	(0n)	22.80	24.55	1½- ½	
4009.90	A	(2)	22.80	25.88	1½-2½	$3p^4S-4s^4P^o$
4017.27	A	(1)	22.80	25.87	½-1½	(27)
4021.13	A	(0)	22.80	25.87	1½- ½	
4317.42	B	4	23.02	25.88	2½-2½	$3p^4P-4s^4P^o$
4321.95	B	0	23.02	25.87	1½-1½	(28)
*4325.88	B	2	23.02	25.87	2½-1½	
			23.02	25.87	1½- ½	
4313.50	B	2	23.02	25.88	1½-2½	
4318.92	B	2	23.01	25.87	½-1½	
3039.67	B	0d	23.28	27.34	—	$3p^2D-4d^2F^o$ (29)
5257.36	A	(2)	24.17	26.52	4½-3½	$3d^4F^o-4p^4D$
			24.17	26.52	3½-2½	(30)
*5259.62	A	(3)	24.17	26.51	2½-1½	
			24.17	26.51	1½- ½	
5249.43	A	(0)	24.17	26.52	3½-3½	
*5253.55§§	A	(1)	24.17	26.52	2½-2½	
3949.45	C	0	24.17	27.29	3½-3½	$3d^4F^o-4f^2F$
3947.60	C	0	24.17	27.29	2½-2½	(31)
*3946.35	C	0	24.17	27.29	2½-3½	
3952.08	A	2	24.17	27.30	4½-4½	$3d^4F^o-4f^4F$
3948.15	B	1	24.17	27.30	3½-3½	(32)
*3946.35	C	0	24.17	27.30	—	
3945.10	C	0	24.17	27.30	2½-3½	
3876.188	A	8	24.17	27.36	4½-5½	$3d^4F^o-4f^4G$
3876.409	A	7	24.17	27.35	3½-4½	(33)
3876.670	A	6	24.17	27.35	2½-3½	
3876.051	A	6	24.17	27.35	1½-2½	
3880.59	B	1	24.17	27.35	4½-4½	
3879.60	B	1	24.17	27.35	3½-3½	
3878.22	B	1	24.17	27.35	2½-2½	
5478.6	A	(0)	24.27	26.52	3½-3½	$3d^4D^o-4p^4D$ (34)
5044.8	B	1	24.27	26.71	3½-2½	$3d^4D^o-4p^4P$
5047.2	B	0	24.27	26.71	2½-1½	(35)
4078.00	B	7	24.27	27.30	3½-4½	$3d^4D^o-4f^4F$
4074.53	A	6	24.27	27.30	2½-3½	(36)
4074.89	A	5	24.27	27.30	—	
3980.35	A	3	24.27	27.37	3½-3½	$3d^4D^o-4f^4D$
3973.84	B	1d	24.27	27.37	2½-2½	(37)
3989.38	C	0	24.27	27.37	1½-1½	
3978.87	C	00	24.27	27.37	2½-3½	
3973.44	C	0	24.27	27.37	1½-2½	
3968.63	C	00	24.26	27.37	½-1½	
3970.20	C	0	24.27	27.38	2½-1½	$3d^4D^o-4f^2D$
3977.30	C	0	24.27	27.37	2½-2½	(38)
4411.52	A	5	24.50	27.29	2½-3½	$3d^2D^o-4f^2F$
4411.20	A	5	24.50	27.29	1½-2½	(39)
4410.06	C	4	24.50	27.30	2½-3½	$3d^2D^o-4f^4F$
						(40)
4292.00	C	1	24.50	27.37	2½-2½	$3d^2D^o-4f^4D$
						(41)
4296.11	B	1	24.50	27.37	2½-2½	$3d^2D^o-4f^2D$
4285.96	B	1	24.50	27.38	1½-1½	(42)
3049.44	B	1d	24.50	28.54	—	$3d^2D^o-5f^2F$ (43)

C II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5907.36	A	(1)	24.55	26.64	2½-1½	$3d^4P^o-4p^4S$
5914.92	A	(0)	24.55	26.64	1½-1½	(44)
5919.60	A	(0)	24.55	26.64	½-1½	
4374.28	A	5	24.55	27.37	2½-3½	$3d^4P^o-4f^4D$
4372.49	A	4	24.55	27.37	1½-2½	(45)
4371.59	A	3	24.55	27.37	½-1½	
*4368.14§§	B	4d	24.55	27.37	—	
4376.78	C	2d	24.55	27.37	1½-2½	$3d^4P^o-4f^2D$ (46)
3059.24	B	0d	24.55	28.58	2½-3½	$3d^4P^o-5f^4D$ (47)
4734.75	B	2d	24.69	27.29	3½-3½	$3d^2F^o-4f^2F$
4737.21	B	1d	24.68	27.29	2½-2½	(48)
4630.52	C	1d	24.69	27.36	3½-4½	$3d^2F^o-4f^4G$
4635.71	C	1d	24.68	27.35	2½-3½	(49)
4618.85	A	5d	24.69	27.36	—	$3d^2F^o-4f^2G$ (50)
5119.55	A	2	24.96	27.37	1½-2½	$3d^2P^o-4f^2D$
5114.07	A	2	24.96	27.38	½-1½	(51)

C III I P 47.67 Anal B List A Feb 1943

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4647.40	A	20	29.39	32.05	1-2	$3^3S-3^3P^o$
4650.18	A	19	29.39	32.05	1-1	(1)
4651.35	A	18	29.39	32.05	1-0	
5696.0	A	8	31.97	34.13	1-2	$3^1P^o-3^1D$ (2)
6744.2	P		38.05	39.88	2-3	$3s^3P^o-3p^3D$
6730.7	P		38.04	39.87	1-2	(3)
6727.1	P		38.04	39.87	0-1	
5272.56	B	2	38.05	40.39	2-1	$3s^3P^o-3p^3S$
*5253.55§§	A	1	38.04	40.39	1-1	(4)
5244.5	A	0	38.04	40.39	0-1	
4665.90	A	6	38.05	40.69	2-2	$3s^3P^o-3p^3P$
4673.91	A	4	38.05	40.69	2-1	(5)
4663.53	A	4	38.05	40.69	1-0	
3262.23	A	1	38.19	41.97	1-2	$4^3S-3d^3P^o$
3259.44	A	0	38.19	41.98	1-1	(6)
3257.90	A	0	38.19	41.98	1-0	
4325.70	A	8	38.27	41.12	1-2	$3s^1P^o-3p^1D$ (7)
3170.16	A	1d	38.48	42.37	0-1	$4^1S-5^1P^o$ (8)
4516.93	A	4	39.22	41.95	2-1	$4^3P^o-5^3S$
4516.02	A	3	39.22	41.95	1,0-1	(9)
3609.61	A	5	39.22	42.64	2-3	$4^3P^o-5^3D$
3608.96	A	4	39.22	42.64	—	(10)
4247.56	A	1	39.47	42.37	1-1	$3p^1P-5^1P^o$ (11)
3703.52	A	2	39.47	42.80	1-1	$3p^1P-3d^1P^o$ (12)
6156.6	P		39.67	41.67	3-3	$4^3D-3d^3D^o$
6155.4	P		39.67	41.67	2-2	(13)
6154.4	P		39.66	41.67	1-1	
4388.24	A	2	39.67	42.48	3-2	$4^3D-5^3P^o$
4383.24	A	1	39.67	42.48	2-1,2	(14)
4379.97	A	0	39.66	42.48	1-0,1	
3889.18	B	4	39.67	42.84	3-4	$4^3D-5^3F^o$
3885.99	B	3	39.67	42.84	2-3	(15)
3883.80	A	2	39.68	42.84	1-2	
4070.30	B	10	39.74	42.77	4-5	$4^3F^o-5^3G$
4068.97	B	9	39.74	42.77	3-4	(16)
4067.87	A	9	39.74	42.77	2-3	
4122.05	A	3	39.80	42.79	1-2	$4^1P^o-5^1D$ (17)
4187.05	A	10	39.84	42.78	3-4	$4^1F^o-5^1G$ (18)
6871.7	P		39.88	41.67	3-3	$3p^3D-3d^3D^o$
6862.9	P		39.87	41.67	2-2	(19)
6857.3	P		39.87	41.67	1-1	

C III continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5894.1	P		39.88	41.97	3-2	$3p^3D-3d^3P^o$
5871.6	P		39.87	41.98	2-1	(20)
5857.9	P		39.87	41.98	1-0	
4162.80	A	5	39.88	42.84	3-4	$3p^3D-5^3F^o$
4156.50	A	4	39.87	42.84	2-3	(21)
4152.43	A	3	39.87	42.84	1-2	
5827.1	A	1	40.02	42.14	2-3	$4^1D-3d^1F^o$ (22)
5249.6	A	0	40.02	42.37	2-1	$4^1D-5^1P^o$ (23)
4056.06	A	5	40.02	43.07	2-3	$4^1D-5^1F^o$ (24)

Lines attributed to C III--Classification dubious

Laboratory I A	Ref	Int
4593.47	A	2d
*4368.14§§	A	4d
4361.85	A	2
4001.56	A	0d
3999.92	A	0d

C IV I P 64.22 Anal A List A Feb 1943

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5801.51	A	4	37.39	39.51	½-1½	$3^2S-3^2P^o$
5812.14	A	3	37.39	39.51	½- ½	(1)
3936	P		54.98	58.12	½-	$5^2S-6^2P^o$ (2)
5023	P		55.41	57.87	1½- ½	$5^2P^o-6^2S$
5021	P		55.41	57.87	½- ½	(3)
4441.81	A	0d	55.41	58.19	—	$5^2P^o-6^2D$ (4)
4789	P		55.54	58.12	—	$5^2D-6^2P^o$ (5)
4647	P		55.54	58.19	—	$5^2D-6^2F^o$ (6)
4665	P		55.54	58.19	—	$5^2F^o-6^2D$ (7)
4658.64	A	5d	55.54	58.20	—	$5^2F^o-6^2G$ etc (8)
4660	P		55.55	58.19	—	$5^2G-6^2F^o$ (9)
6592	P		57.87	59.74	½-	$6^2S-7^2P^o$ (10)
4217	P		57.87	60.80	½-	$6^2S-8^2P^o$ (11)
4737	P		58.19	60.80	—	$6^2D-8^2P^o$ (12)

N I I P 14.49 Anal B List B Feb 1944

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
8680.24	A	10	10.29	11.71	2½-3½	$3s^4P-3p^4D^o$
8683.38	A	8	10.29	11.71	1½-2½	(1)
8686.13	A	7	10.28	11.70	½-1½	
8718.82	A	6	10.29	11.71	2½-2½	
8711.69	A	7	10.29	11.70	1½-1½	
8703.24	A	6	10.28	11.70	½- ½	
8747.35	A	0	10.29	11.70	2½-1½	
8728.88	A	1	10.29	11.70	1½- ½	
8216.28	A	6	10.29	11.79	2½-2½	$3s^4P-3p^4P^o$
8210.64	A	2	10.29	11.79	1½-1½	(2)
8200.31	A	1	10.28	11.79	½- ½	
8242.34	A	4	10.29	11.79	2½-1½	
8223.07	A	4	10.29	11.79	1½- ½	
8184.80	A	4	10.29	11.79	1½-2½	
8187.95	A	4	10.28	11.79	½-1½	
7468.29	A	10	10.29	11.94	2½-1½	$3s^4P-3p^4S^o$
7442.28	A	8	10.29	11.94	1½-1½	(3)
7423.63	A	7	10.28	11.94	½-1½	
4253.28	B	4	10.29	13.19	2½-3½	$3s^4P-4p^4D^o$
*4254.7	D	4	10.29	13.19	1½-2½	(4)
			10.28	13.18	½-1½	
4223.04	B	5	10.29	13.21	2½-2½	$3s^4P-4p^4P^o$
4230.35	D	4	10.29	13.21	2½-1½	(5)
4224.74	B	4	10.29	13.21	1½- ½	
4214.73	B	5	10.29	13.21	1½-2½	
4215.92	B	2	10.28	13.21	½-1½	
4151.46	B	12	10.29	13.26	2½-1½	$3s^4P-4p^4S^o$
4143.42	P		10.29	13.26	1½-1½	(6)
4137.63	B	7	10.28	13.26	½-1½	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
N I continued						
9392.80	A	1	10.64	11.96	$1\frac{1}{2}-2\frac{1}{2}$	$3s^2P-3p^2P^o$
9386.79	A	0	10.63	11.95	$\frac{1}{2}-1\frac{1}{2}$	(7)
9460.66	P	(25)	10.64	11.95	$1\frac{1}{2}-1\frac{1}{2}$	
8629.24	A	8	10.64	12.07	$1\frac{1}{2}-1\frac{1}{2}$	$3s^2P-3p^2P^o$
8594.01	A	6	10.63	12.07	$\frac{1}{2}-\frac{1}{2}$	(8)
8655.88	A	3	10.64	12.07	$1\frac{1}{2}-\frac{1}{2}$	
8567.74	A	4	10.63	12.07	$\frac{1}{2}-1\frac{1}{2}$	
4935.03	B	10	10.64	13.14	$1\frac{1}{2}-\frac{1}{2}$	$3s^2P-4p^2S^o$
4914.90	B	5	10.63	13.14	$\frac{1}{2}-\frac{1}{2}$	(9)
4109.98	B	12	10.64	13.65	$1\frac{1}{2}-2\frac{1}{2}$	$3s^2P-3p'\ ^2D^o$
4099.94	B	9	10.63	13.64	$\frac{1}{2}-1\frac{1}{2}$	(10)
4114.00	B	6	10.64	13.64	$1\frac{1}{2}-1\frac{1}{2}$	
3830.39	B	9	10.64	13.87	$1\frac{1}{2}-1\frac{1}{2}$	$3s^2P-3p'\ ^2P^o$
3822.07	B	6	10.63	13.86	$\frac{1}{2}-\frac{1}{2}$	(11)
3834.24	B	4	10.64	13.86	$1\frac{1}{2}-\frac{1}{2}$	
3818.27	B	2	10.63	13.87	$\frac{1}{2}-1\frac{1}{2}$	
11564.8	C	(50)	10.88	11.94	$2\frac{1}{2}-1\frac{1}{2}$	$sp^4\ ^4P-3p^4S^o$
11628.0	C	(80)	10.88	11.94	$1\frac{1}{2}-1\frac{1}{2}$	(12)
11656.0	C	(200)	10.88	11.94	$\frac{1}{2}-1\frac{1}{2}$	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
N I continued						
5328.70	B	5	10.88	13.19	$2\frac{1}{2}-3\frac{1}{2}$	$sp^4\ ^4P-4p^4D^o$†
5356.77	B	5	10.88	13.19	$1\frac{1}{2}-2\frac{1}{2}$	(13)
5372.66	B	3d	10.88	13.18	$\frac{1}{2}-1\frac{1}{2}$	
5281.18	B	3	10.88	13.21	$2\frac{1}{2}-2\frac{1}{2}$	$sp^4\ ^4P-4p^4P^o$†
						(14)
9060.6	C	(350)	11.55	12.91	$\frac{1}{2}-1\frac{1}{2}$	$3p^2S^o-3d^2P$
9028.9	C	(50)	11.55	12.92	$\frac{1}{2}-\frac{1}{2}$	(15)
6008.48	B	10	11.55	13.61	$\frac{1}{2}-1\frac{1}{2}$	$3p^2S^o-4d^2P$
5999.47	B	6	11.55	13.61	$\frac{1}{2}-\frac{1}{2}$	(16)
11294.0	C	(125)	11.71	12.81	$3\frac{1}{2}-2\frac{1}{2}$	$3p^4D^o-4s^4P$
11313.8	C	(30)	11.71	12.80	$2\frac{1}{2}-1\frac{1}{2}$	(17)
11329.0	C	(200)	11.70	12.79	$1\frac{1}{2}-\frac{1}{2}$	
11287.5	C	(10)	11.71	12.81	$2\frac{1}{2}-2\frac{1}{2}$	
*10113.4	C	(900)	(11.71	12.93	$3\frac{1}{2}-4\frac{1}{2}$?	$3p^4D^o-3d^4F$
			(11.71	12.93	$2\frac{1}{2}-3\frac{1}{2}$?	(18)
			(11.70	12.92	$1\frac{1}{2}-2\frac{1}{2}$?	
			(11.70	12.92	$\frac{1}{2}-1\frac{1}{2}$?	
10164.5	C	(30)	11.71	12.93	$3\frac{1}{2}-3\frac{1}{2}$?	
10147.3	C	(40)	11.71	12.92	$2\frac{1}{2}-2\frac{1}{2}$?	
9862.5	C	(60)	11.71	12.96	$3\frac{1}{2}-3\frac{1}{2}$	$3p^4D^o-3d^4D$
9821.8	C	(10)	11.71	12.96	$2\frac{1}{2}-2\frac{1}{2}$	(19)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
N I continued						
6644.96	B	9	11.71	13.57	$3\frac{1}{2}-2\frac{1}{2}$	$3p^4D^o-5s^4P$†
6653.41	B	5	11.71	13.56	$2\frac{1}{2}-1\frac{1}{2}$	(20)
6656.61	B	1	11.70	13.56	$1\frac{1}{2}-\frac{1}{2}$	
6622.53	B	3	11.71	13.57	$2\frac{1}{2}-2\frac{1}{2}$	
6637.01	B	4	11.70	13.56	$1\frac{1}{2}-1\frac{1}{2}$	
6646.52	B	2	11.70	13.56	$\frac{1}{2}-\frac{1}{2}$	
6482.74	B	9	11.71	13.62	$3\frac{1}{2}-4\frac{1}{2}$	$3p^4D^o-4d^4F$
6484.88	B	9	11.71	13.61	$2\frac{1}{2}-3\frac{1}{2}$	(21)
6483.75	B	3	11.70	13.61	$1\frac{1}{2}-2\frac{1}{2}$	
6481.73	B	2	11.70	13.60	$\frac{1}{2}-1\frac{1}{2}$	
6506.45	B	0	11.71	13.61	$3\frac{1}{2}-3\frac{1}{2}$	
6499.52	B	3	11.71	13.61	$2\frac{1}{2}-2\frac{1}{2}$	
6491.28	B	3	11.70	13.60	$1\frac{1}{2}-1\frac{1}{2}$	
*6468.32	B	4	(11.71	13.82	$3\frac{1}{2}-3\frac{1}{2}$	$3p^4D^o-4d^4D$†
			11.71	13.62	$2\frac{1}{2}-2\frac{1}{2}$	(22)
6457.93	B	3	11.70	13.61	$1\frac{1}{2}-1\frac{1}{2}$	
6441.70	B	5	11.71	13.63	$3\frac{1}{2}-2\frac{1}{2}$	$3p^4D^o-4d^4P$†
6437.01	B	4	11.70	13.62	$1\frac{1}{2}-\frac{1}{2}$	(23)
6420.47	B	3	11.71	13.63	$2\frac{1}{2}-2\frac{1}{2}$	
5616.54	B	5	11.71	13.91	$3\frac{1}{2}-2\frac{1}{2}$	$3p^4D^o-6s^4P$†
5623.20	B	4	11.71	13.90	$2\frac{1}{2}-1\frac{1}{2}$	(24)
5625.43	B	2	11.70	13.90	$1\frac{1}{2}-\frac{1}{2}$	

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
N I continued						
5560.37	B	9	11.71	13.93	3½-4½	3p⁴P°-5d⁴F
5564.37	B	9	11.71	13.92	2½-3½†	(25)
5545.11	B	3	11.71	13.94	3½-2½	3p⁴D°-5d⁴P (26)
12186.9	C	(100)	11.79	12.81	2½-2½	3p⁴P°-4s⁴P
12232.9	C	(8)	11.79	12.80	1½-1½	(27)
12288.0	C	(75)	11.79	12.80	2½-1½	
12128.6	C	(20)	11.79	12.81	1½-2½	
12203.4	C	(75)	11.79	12.80	½-1½	
10539.0	C	(125)	11.79	12.96	2½-3½	3p⁴P°-3d⁴D
10506.5	C	(70)	11.79	12.96	1½-2½	(28)
10548.0	C	(60)	11.79	12.96	2½-2½	
6945.22	B	4	11.79	13.57	2½-2½	3p⁴P°-5s⁴P†
6979.10	B	1	11.79	13.56	2½-1½	(29)
6936.90	B	1	11.79	13.57	1½-2½	
6752.40	B	4	11.79	13.62	2½-3½	3p⁴P°-4d⁴D
6758.60	B	4	11.79	13.62	1½-2½	(30)
6723.12	B	9	11.79	13.63	2½-2½	3p⁴P°-4d⁴P
6733.48	B	6	11.79	13.62	½- ½	(31)
6706.20	B	4	11.79	13.63	1½-2½	
6741.29	B	3	11.79	13.62	1½- ½	
5829.53	B	6	11.79	13.91	2½-2½	3p⁴P°-6s⁴P†
5841.01	B	2	11.79	13.90	1½-1½	(32)
5854.18	B	2	11.79	13.90	2½-1½	
5816.48	B	2	11.79	13.91	1½-2½	
5752.64	B	4	11.79	13.94	2½-2½	3p⁴P°-5d⁴P (33)
12186.9	C	(100)	11.94	12.96	1½-2½†	3p⁴8°-3d⁴P
12288.0	C	(75)	11.94	12.95	1½-1½†	(34)
12327.7	C	(150)	11.94	12.95	1½- ½†	
5747.36	B	2	11.94	14.09	1½-2½	3p⁴8°-7s⁴P (35)
12467.8	C	(350)	11.96	12.95	2½-3½	3p²D°-3d²F
12461.2	C	(200)	11.95	12.94	1½-2½	(36)
12582.3	C	(40)	11.96	12.94	2½-2½	
12074.1	C	(60)	11.96	12.98	2½-2½	3p²D°-3d²D
11997.9	C	(30)	11.95	12.98	1½-1½	(37)
12107.4	C	(10)	11.96	12.98	2½-1½	
Strongest Unclassified Lines Attributed to N I						
6708.81	B	4				
4494.67	B	5				
4492.40	B	7				
4358.27	B	10				
4336.48	B	5				
4317.70	B	5				
4313.11	B	4				
4305.46	B	6				
3999.98	B	4				
3869.10	B	4				
3650.19	B	5				
3532.65	B	4				

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Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
4895.20	C	4	17.80	20.32	2-1	2p³ ¹p°-3p¹P (1)
6379.63	C	5	18.39	20.32	1-1	3s³P°-3p¹P
6365.7	C	0	18.38	20.32	0-1	(2)
5879.56	C	10	18.40	20.58	2-3	3s³P°-3p³D
5666.64	C	8	18.39	20.58	1-2	(3)
5678.02	C	6	18.38	20.56	0-1	
5710.76	C	6	18.40	20.56	2-2	
5886.21	C	8	18.39	20.56	1-1	
5730.67	C	2	18.40	20.56	2-1	
5045.098	C	8	18.40	20.85	2-1	3s³P°-3p³S
5010.620	C	6	18.39	20.85	1-1	(4)
5002.692	C	2	18.38	20.85	0-1	
4630.537	A	10	18.40	21.07	2-2	3s³P°-3p³P
4613.868	A	6	18.39	21.06	1-1	(5)
4643.086	A	8	18.40	21.06	2-1	
4621.392	A	7	18.39	21.06	1-0	
4801.478	A	8	18.39	21.07	1-2	
4607.153	A	7	18.38	21.06	0-1	
3955.851	A	6	18.39	21.51	1-2	3s³P°-3p¹D (8)
3408.138	C	3	18.39	22.01	1-0	3s³P°-3p¹8 (7)
6482.07	C	8	18.42	20.32	1-1	3s¹P°-3p¹P (8)
5747.29	C	4	18.42	20.56	1-2	3s¹P°-3p³D
5787.43	C	3	18.42	20.58	1-1	(9)
5073.60	C	3	18.42	20.85	1-1	3s¹P°-3p³S (10)
4854.57	C	2	18.42	21.07	1-2	3s¹P°-3p³P
4867.28	C	2	18.42	21.08	1-1	(11)
4674.98	C	2	18.42	21.06	1-0	
3994.998	A	10	18.42	21.51	1-2	3s¹P°-3p¹D (12)
3437.162	C	6	18.42	22.01	1-0	3s¹P°-3p¹S (13)

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
N II continued						
4564.78	C	1	20.32	23.02	1-2	3p¹P-3d³F° (14)
4447.033	A	10	20.32	23.10	1-2	3p¹P-3d¹D° (15)
4375.00	C	0	20.32	23.14	1-2	3p¹P-3d³D° (16)
3919.005	A	6	20.32	23.47	1-1	3p¹P-3d¹P° (17)
3006.86	C	7	20.32	24.43	1-1	3p¹P-4s¹P° (18)
•5005.140	C	10	20.58	23.04	3-4	3p³D-3d³F° (19)
5001.469	C	8	20.56	23.03	2-3	
5001.128	C	7	20.56	23.02	1-2	
5025.665	C	6	20.58	23.03	3-3	
5016.387	C	5	20.56	23.02	2-2	
5040.76	C	0	20.58	23.02	3-2	
4803.272	C	8	20.58	23.15	3-3	3p³D-3d³D° (20)
4788.126	C	5	20.56	23.14	2-2	
4779.710	C	4	20.56	23.14	1-1	
4810.286	C	2	20.58	23.14	3-2	
4793.656	C	2	20.56	23.14	2-1	
4781.168	C	2	20.56	23.15	2-3	
4774.222	C	2	20.56	23.14	1-2	
4507.559	A	3	20.58	23.31	3-2	3p³D-3d³P° (21)
4477.74	C	2	20.56	23.32	2-1	
4459.96	C	1	20.56	23.32	1-0	
4488.15	C	0	20.56	23.31	2-2	
4465.54	C	0	20.56	23.32	1-1	
3328.79	C	4	20.58	24.28	3-2	3p³D-4s³P° (22)
3331.32	C	3	20.56	24.27	2-1	
3330.30	C	2	20.56	24.26	1-0	
3318.14	C	2	20.56	24.28	2-2	
3324.58	C	2	20.56	24.27	1-1	
5383.82	C	0	20.85	23.14	1-2	3p³S-3d³D° (23)
5007.316	C	7	20.85	23.31	1-2	3p³S-3d³P°
•4994.358	C	6	20.85	23.32	1-1	(24)
4987.377	C	4	20.85	23.32	1-0	
4709.45	C	1	20.85	23.47	1-1	3p³S-3d¹P° (25)
3593.60	C	3	20.85	24.28	1-2	3p³S-4s³P°
3609.09	C	2	20.85	24.27	1-1	(26)
3615.88	C	1	20.85	24.26	1-0	
6065.5	C	0	21.06	23.10	1-2	3p³P-3d¹D° (27)
5941.67	C	8	21.07	23.15	2-3	3p³P-3d³D°
5931.79	C	7	21.08	23.14	1-2	(28)
5927.82	C	4	21.06	23.14	0-1	
5952.39	C	3	21.07	23.14	2-2	
5940.25	C	2	21.06	23.14	1-1	
5960.93	C	0	21.07	23.14	2-1	
5495.70	C	5	21.07	23.31	2-2	3p³P-3d³P°
5462.62	C	3	21.06	23.32	1-1	(29)
5480.10	C	3	21.07	23.32	2-1	
5454.26	C	2	21.06	23.32	1-0	
5478.13	C	2	21.06	23.31	1-2	
5452.12	C	2	21.06	23.32	0-1	
3838.39	C	5	21.07	24.28	2-2	3p³P-4s³P°
3847.38	C	3	21.08	24.27	1-1	(30)
3856.07	C	3	21.07	24.27	2-1	
3855.08	C	2	21.06	24.26	1-0	
3829.80	C	3	21.06	24.28	1-2	
3842.20	C	3	21.06	24.27	0-1	
6610.58	C	6	21.51	23.37	2-3	3p¹D-3d¹F° (31)
6284.30	C	3	21.51	23.47	2-1	3p¹D-3d¹P° (32)
4227.749	A	3n	21.51	24.43	2-1	3p¹D-4s¹P° (33)
5104.45	C	2	22.01	24.43	0-1	3p¹S-4s¹P° (34)
3023.80	C	2	22.01	26.09	0-1	3p¹S-4d¹P° (35)
•6167.82	C	4	23.04	25.04	4-3	3d³F°-4p³D
6173.40	C	3	23.03	25.03	3-2	(36)
6170.16	C	1	23.02	25.03	2-1	
6136.9	C	0	23.03	25.04	3-3	
6150.9	C	0	23.02	25.03	2-2	
6114.8	C	0	23.02	25.03	2-3	
4087.35	C	0n	23.03	26.05	3-3	3d³F°-4f¹F (37)
4095.92	P		23.04	26.06	4-4	3d³F°-4f³F
4082.85	C	00	23.03	26.05	3-3	(38)
4076.83	C	0n	23.02	28.05	2-2	
4082.280	A	2n	23.03	26.06	3-4	
4073.055	A	2n	23.02	26.05	2-3	
4041.321	A	5n	23.04	26.10	4-5	3d³F°-4f³G
4043.537	A	3n	23.03	26.08	3-4	(39)
4035.087	A	4n	23.02	28.08	2-3	
4057.00	C	1	23.04	26.08	4-4	
4044.75	C	1	23.03	26.08	3-3	
4026.080	A	3n	23.03	26.10	3-4	3d³F°-4f¹G (40)
6630.5	C	2	23.10	24.96	2-1	3d¹D°-4p¹P (41)
4176.164	A	3n	23.10	26.05	2-3	3d¹D°-4f¹F (42)
4171.608	A	2n	23.10	26.05	2-3	3d¹D°-4f³F (43)

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
N II continued						
4110.00	C	0n	23.10	26.10	2-2	3d¹D°-4f³D (44)
6504.9	C	2	23.15	25.04	3-3	3d³D°-4p³D
6533.0	C	1	23.14	25.03	2-2	(45)
			23.14	25.03	1-1	
•6545.2	C	0	(23.15	25.03	3-2	
6492.0	C	0	23.14	25.04	2-3	
6522.3	C	0	23.14	25.03	1-2	
6340.67	C	4	23.15	25.09	3-2	3d³D°-4p³P
•6357.0	C	3	(23.14	25.08	2-1	(46)
			(23.14	25.08	1-0	
6328.6	C	1	23.14	25.09	2-2	
6347.1	C	1	23.14	25.08	1-1	
•4241.787	A	8n	23.14	26.05	2-3	3d³D°-4f¹F (47)
•4241.787	A	8n	23.15	26.06	3-4	3d³D°-4f³F
4237.049	A	4	23.14	26.05	2-3	(48)
4236.930	A	5	23.14	26.05	1-2	
4181.17	C	0n	23.15	26.10	3-4	3d³D°-4f¹G (49)
4179.667	A	1n	23.15	26.10	3-3	3d³D°-4f³D
4173.51	C	0n	23.14	26.10	2-2	(50)
•4156.8	C	0nn	23.14	26.11	1-1	
•4160.8	C	0nn	23.14	26.11	2-1	
4173.75	C	0n	23.14	26.10	2-3	
•4160.8	C	0nn	23.14	26.11	2-2	3d³D°-4f¹D
•4156.8	C	0nn	23.14	26.11	1-2	(51)
7139.8	B	3	23.31	25.04	2-3	3d³P°-4p³D
7217.0	B	2	23.32	25.03	1-2	(52)
7259.3	B	2	23.32	25.03	0-1	
7188.7	B	0	23.31	25.03	2-2	
6942.9	B	3	23.31	25.09	2-2	3d³P°-4p³P
7003.0	B	0n	23.32	25.08	1-1	(53)
6976.8	B	2	23.31	25.08	2-1	
•7015.3	B	1	23.32	25.08	1-0	
6967.6	B	1	23.32	25.09	1-2	
•7015.3	B	1	23.32	25.08	0-1	
6812.26	C	2	23.31	25.13	2-1	3d³P°-4p³S
6836.2	C	1	23.32	25.13	1-1	(54)
4432.739	A	6n	23.31	26.10	2-3	3d³P°-4f³D
4441.99	C	3n	23.32	26.10	1-2	(55)
4433.48	C	2n	23.32	26.11	0-1	
4431.82	C	0	23.31	26.10	2-2	
4427.97	C	2	23.32	26.11	1-1	
4427.21	C	2	23.32	26.11	1-2	3d³P°-4f¹D (56)
6242.52	C	5	23.37	25.35	3-2	3d¹F°-4p¹D (57)
4552.536	A	4	23.37	26.08	3-4	3d¹F°-4f³G (58)
4530.403	A	5	23.37	26.10	3-4	3d¹F°-4f¹G (59)
•6167.82	C	4	23.47	25.47	1-0	3d¹P°-4p¹S (60)
4694.55	C	3n	23.47	26.10	1-2	3d¹P°-4f³D (61)
4677.93	C	3n	23.47	26.11	1-2	3d¹P°-4f¹D (62)
•5535.39	C	5	(25.38	27.61)	3-4	3s⁵P-3p⁵D°
5530.27	C	4	(25.37	27.61)	2-3	(63)
5526.26	C	2	(25.37	27.60)	1-2	
5551.95	C	3	(25.38	27.61)	3-3	
5543.49	C	3	(25.37	27.60)	2-2	
•5535.39	C	5	(25.37	27.60)	1-1	
5565.30	C	0	(25.38	27.60)	3-2	
5552.54	B	00	(25.37	27.60)	2-1	
5540.16	C	1	(25.37	27.59)	1-0	
5012.026	C	2	(25.38	27.84)	3-3	3s⁵P-3p⁵P°
•5005.140	C	10	(25.37	27.84)	2-2	(64)
4997.23	C	0	(25.37	27.84)	1-1	
5023.11	C	2	(25.38	27.84)	3-2	
5011.24	B	1	(25.37	27.84)	2-1	
•4994.358	C	6	(25.37	27.84)	2-3	
4991.22	C	2	(25.37	27.84)	1-2	
4145.764	A	3	(25.38	28.36)	3-2	3s⁵P-3p⁵S°
4133.669	A	2	(25.37	28.36)	2-2	(65)
4124.081	A	1	(25.37	28.36)	1-2	
•5179.50	C	5	(27.61	29.99)	4-5	3p⁵D°-3d⁵F
5175.89	C	3	(27.61	29.99)	3-4	(66)
5173.37	C	2	(27.60	29.99)	2-3	
			(27.60	29.98)	1-2	
•5172.32	C	1	(27.59	29.98)	0-1	
5190.42	C	2	(27.61	29.99)	4-4	
5184.97	C	2	(27.61	29.99)	3-3	
5180.34	B	1	(27.60	29.98)	2-2	
5199.50	B	00	(27.61	29.99)	4-3	
4860.35	C	2	(27.61	30.15)	4-3	3p⁵D°-3d⁵P (67)
4718.43	C	2	(27.61	30.23)	4-4	3p⁵D°-3d⁵D
4709.45	C	1	(27.61	30.23)	3-3	(68)
4702.57	C	0	(27.60	30.22)	2-2	
4721.59	C	0	(27.61	30.23)	4-3	
4712.13	C	0	(27.61	30.22)	3-2	
4704.33	C	0	(27.60	30.22)	2-1	
4698.62	B	0	(27.60	30.22)	1-0	
4706.41	C	0	(27.61	30.23)	3-4	
4700.12	C	0	(27.60	30.23)	2-3	
4695.91	C	1	(27.60	30.22)	1-2	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
N II continued						
5351.21	B	4	(27.84	30.15)	3-3	$3p^5P^o-3d^5P$
5327.45	B	0	(27.84	30.16)	2-2	(69)
5313.43	B	0	(27.84	30.16)	1-1	
5340.20	B	1	(27.84	30.16)	3-2	
•5320.96	B	3	(27.84	30.16)	2-1	
5338.66	B	2	(27.84	30.15)	2-3	
•5320.96	B	3	(27.84	30.16)	1-2	
•5179.50	C	5	(27.84	30.23)	3-4	$3p^5P^o-3d^5D$
5171.46	C	1	(27.84	30.23)	2-3	(70)
5168.24	C	1	(27.84	30.22)	1-2	
5183.21	C	2	(27.84	30.23)	3-3	
5174.46	C	1	(27.84	30.22)	2-2	
5170.08	C	1	(27.84	30.22)	1-1	
5186.17	B	0	(27.84	30.22)	3-2	
6888.7	B	2	(28.36	30.15)	2-3	$3p^5S^o-3d^5P$
6870.8	B	1	(28.36	30.16)	2-2	(71)
6857.6	B	1	(28.36	30.16)	2-1	
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4097.31	A	10	27.32	30.33	½-1½	$3^2S-3^2P^o$
4103.37	A	9	27.32	30.33	½-½	(1)
4640.64	A	(10)	30.33	32.99	1½-2½	$3^2P^o-3^2D$
4634.16	A	(9)	30.33	32.99	½-1½	(2)
4641.90	A	(7)	30.33	32.99	1½-1½	
4514.89	A	7	35.52	38.25	2½-3½	$3s^4P^o-3p^4D$
•4510.92	A	6	(35.50	38.24	1½-2½	(3)
			35.50	38.23	½-1½	
4534.57	A	3	35.52	38.24	2½-2½	
4523.60	A	4	35.50	38.23	1½-1½	
4518.18	A	3	35.50	38.23	½-½	
4547.34	A	0	35.52	38.23	2½-1½	
4530.84	A	1	35.50	38.23	1½-½	
3771.08	A	7	35.52	38.79	2½-1½	$3s^4P^o-3p^4S$
3754.62	A	6	35.50	38.79	1½-1½	(4)
3745.83	A	4	35.50	38.79	½-1½	
3367.36	A	7	35.52	39.18	2½-2½	$3s^4P^o-3p^4P$
3361.90	A	2	35.50	39.18	1½-1½	(5)
3358.72	A	1	35.50	39.17	½-½	
3374.06	A	6	35.52	39.18	2½-1½	
3365.79	A	3	35.50	39.17	1½-½	
3354.29	A	4	35.50	39.18	1½-2½	
3353.78	A	4	35.50	39.18	½-1½	
4200.02	A	6	36.70	39.64	1½-2½	$3s^2P^o-3p^2D$
4195.70	A	5	36.68	39.62	½-1½	(6)
4215.69	B	(3)	36.70	39.62	1½-1½	
3355.47	B	(2)	36.70	40.38	1½-½	$3s^2P^o-3p^2S$
3342.77	B	(1)	36.68	40.38	½-½	(7)
3938.52	A	4	38.17	41.30	1½-2½	$3p^2P-3d^2D^o$
3934.41	A	3	38.16	41.30	½-1½	(8)
3942.78	B	(1)	38.17	41.30	1½-1½	
•4867.18	A	5	38.25	40.79	3½-4½	$3p^4D-3d^4F^o$
4861.33	A	4	38.24	40.78	2½-3½	(9)
4858.88	A	3	38.23	40.77	1½-2½	
4858.74	A	2	38.23	40.77	½-1½	
4884.14	A	1	38.25	40.78	3½-3½	
4873.58	A	2	38.24	40.77	2½-3½	
•4867.18	A	5	38.23	40.77	1½-1½	
4896.71	A	0	38.25	40.77	3½-2½	
4881.81	A	0	38.24	40.77	2½-1½	
4348.36	A	5	38.25	41.09	3½-3½	$3p^4D-3d^4D^o$
4335.53	A	4	38.24	41.09	2½-2½	(10)
4328.15	A	3	38.23	41.09	1½-1½	
•4323.93	A	2	38.23	41.08	½-½	
4353.66	A	2	38.25	41.09	3½-2½	
4339.52	A	3	38.24	41.09	2½-1½	
4330.44	A	2	38.23	41.08	1½-½	
4330.14	A	2	38.24	41.09	2½-3½	
•4323.93	A	2	38.23	41.09	1½-2½	
4321.37	A	1	38.23	41.09	½-1½	
3792.87	A	1	38.25	41.51	3½-2½	$3p^4D-3d^4P^o$
3771.45	P		38.24	41.51	2½-1½	(11)
3757.66	P		38.23	41.52	1½-½	
3779.23	P		38.24	41.51	2½-2½	
3762.62	P		38.23	41.51	1½-1½	
3752.65	P		38.23	41.52	½-½	
3770.37	P		38.23	41.51	1½-2½	
3757.60	P		38.23	41.51	½-1½	
N III continued						
4544.80	B	(0)	38.48	41.20	1½-½	$4^2P^o-5^2S$
						(12)
4546.36	A	3	38.79	41.51	1½-2½	$3p^4S-3d^4P^o$
4535.11	A	2	38.79	41.51	1½-1½	(13)
4527.88	A	0	38.79	41.52	1½-½	
6466.86	A	4	39.18	41.09	2½-3½	$3p^4P-3d^4D^o$
6453.95	A	3	39.18	41.09	1½-2½	(14)
6445.05	A	2	39.17	41.09	½-1½	
6478.69	A	2	39.18	41.09	2½-2½	
6463.03	A	2	39.18	41.09	1½-1½	
6450.78	A	2	39.17	41.08	½-½	
6487.55	A	0	39.18	41.09	2½-1½	
6468.77	A	00	39.18	41.08	1½-½	
5314.45	A	2	39.18	41.51	2½-2½	$3p^4P-3d^4P^o$
5282.52	A	00	39.18	41.51	1½-1½	(15)
5260.91	A	1n	39.17	41.52	½-½	
5298.93	A	1	39.18	41.51	2½-1½	
5272.60	A	1	39.18	41.52	1½-½	
5297.86	A	1	39.18	41.51	1½-2½	
5270.59	A	1	39.17	41.51	½-1½	
4003.64	A	(4d)	39.23	42.31	2½-3½	$4^2D-5^2F^o$
3998.69	A	(3d)	39.23	42.31	1½-2½	(16)
4379.09	A	(10d)	39.54	42.38	—	$4^2F^o-5^2G$
						(17)
Unclassified Lines of N III						
4294.76	A	0n				
4290.80	A	3n				
4290.55	A	1n				
4288.72	A	1n				
4288.21	A	0n				
4284.51	A	1n				
3172.97	A	2				
3171.14	A	1				
N IV I P 77.09 Anal B List A Feb 1943						
3478.89	A	7	(46.57	50.11)	1-2	$3^3S-3^3P^o$
3482.98	A	5	(46.57	50.11)	1-1	(1)
3484.90	A	3	(46.57	50.11)	1-0	
6383	P		48.00	49.94	0-1	$3^1S-3^1P^o$
						(2)
4057.80	B	2	49.98	52.98	1-2	$3^1P^o-3^1D$
						(3)
7123.10	A	5	(50.11	51.85)	2-3	$3^3P^o-3^3D$
7109.48	A	3	(50.11	51.85)	1-2	(4)
7103.28	A	1	(50.11	51.85)	0-1	
7127.31	A	1	(50.11	51.85)	2-2	
7111.28	A	1	(50.11	51.85)	1-1	
7129	P		(50.11	51.85)	2-1	
5245	P		(57.48	59.81)	2-3	$3s^3P^o-3p^3D$
5236	P		(57.44	59.80)	1-2	(5)
5281	P		(57.46	59.80)	2-2	
4528	P		(57.46	60.19)	2-1	$3s^3P^o-3p^3S$
4495	P		(57.44	60.19)	1-1	(8)
4479	P		(57.43	60.19)	0-1	
3463.38	B	1	(57.46	61.03)	2-2	$3s^3P^o-3p^3P$
3454	P		(57.44	61.01)	1-1	(7)
3474.56	B	0	(57.46	61.01)	2-1	
3461.34	B	0	(57.44	61.01)	1-0	
3443	P		(57.44	61.03)	1-2	
3445	P		(57.43	61.01)	0-1	
3747.86	B	0	58.44	61.69	1-2	$3s^1P^o-3p^1D$
						(8)
5734	P		59.36	61.52	1-2	$3p^1P-3d^1D^o$
						(9)
3824	P		59.36	62.59	1-1	$3p^1P-4^1P^o$
						(10)
4752	P		(59.81	62.41)	3-3	$3p^3D-3d^3D^o$
4733	P		(59.80	62.41)	2-2	(11)
4762	P		(59.81	62.41)	3-2	
4740	P		(59.80	62.40)	2-1	
4723	P		(59.80	62.41)	2-3	
3714	P		(59.81	63.14)	3-2	$3p^3D-3d^3P^o$
3689	P		(59.80	63.14)	2-1	(12)
3896	P		(59.80	63.14)	2-2	
N IV continued						
5561	P		(60.19	62.41)	1-2	$3p^3S-3d^3D^o$
5571	P		(60.19	62.40)	1-1	(13)
4183	P		(60.19	63.14)	1-2	$3p^3S-3d^3P^o$
4174	P		(60.19	63.14)	1-1	(14)
5846	P		(61.03	63.14)	2-2	$3p^3P-3d^3P^o$
5794	P		(61.01	63.14)	1-1	(15)
5828	P		(61.03	63.14)	2-1	
5812	P		(61.01	63.14)	1-2	
6125	P		61.52	63.53	2-2	$3d^1D^o-4^1D$
						(16)
5073	P		61.69	64.12	2-1	$3p^1D-3d^1P^o$
						(17)
N V I P 97.47 Anal A List A Dso 1944						
4603.2	P		56.31	58.99	½-1½	$3^2S-3^2P^o$
4619.4	P		56.31	58.98	½-½	(1)
3181	P		83.74	87.64	-½	$5^2P^o-6^2S$
						(2)
4335	P		87.64	90.49	½-	$6^2S-7^2P^o$
						(3)
5373	P		87.95	90.30	-½	$6^2P^o-7^2S$
						(4)
4751	P		87.95	90.55	—	$6^2P^o-7^2D$
						(5)
5067	P		88.05	90.49	—	$6^2D-7^2P^o$
						(8)
4933	P		88.05	90.56	—	$6^2D-7^2F^o$
						(7)
4952	P		88.06	90.55	—	$8^2F^o-7^2D$
						(8)
4943	P		88.06	90.58	—	$6^2F^o-7^2G$ etc
						(9)
4945	P		88.06	90.56	—	$6^2G-7^2H^o$ etc
						(10)
6719	P		90.30	92.13	½-	$7^2S-8^2P^o$
						(11)
7330	P		90.49	92.17	—	$7^2P^o-8^2D$
						(12)
O I I P 13.58 Anal A List B Apr 1944						
7771.96	A	27	9.11	10.69	2-3	$3^5S^o-3^5P$
7774.18	A	26	9.11	10.69	2-2	(1)
7775.40	A	25	9.11	10.69	2-1	
6726.25	A	5	9.11	10.94	2-2	$3^5S^o-3^3P$
6726.50	A	2	9.11	10.94	2-1	(2)
3947.301	E	10	9.11	12.23	2-3	$3^5S^o-4^5P$
3947.489	E	7	9.11	12.23	2-2	(3)
3947.594	E	4	9.11	12.23	2-1	
•8446.35	A	25	9.48	10.94	1-2	$3^3S^o-3^3P$
8446.76	A	23	9.48	10.94	1-1	(4)
•8446.35	A	25	9.48	10.94	1-0	
4368.30	D	(10)	9.48	12.31	1-	$3^3S^o-4^3P$
						(5)
3692.44	D	(7)	9.48	12.82	1-	$3^3S^o-5^3P$
						(6)
11302.22	B	15	10.69	11.79	3-2	$3^5P-4^5S^o$
11297.54	B	10	10.69	11.79	2-2	(7)
11294.97	B	5	10.69	11.79	1-2	
9265.99	A	16	10.69	12.03	3-	$3^5P-3^5D^o$
9262.73	A	15	10.69	12.03	2-	(8)
9260.88	A	14	10.69	12.03	1-	
6456.01	A	17	10.89	12.61	3-2	$3^5P-5^5S^o$
6454.48	A	16	10.69	12.61	2-2	(9)
6453.84	A	15	10.69	12.61	1-2	
6158.19	A	18	10.69	12.70	3-	$3^5P-4^5D^o$
8158.78	A	17	10.69	12.70	2-	(10)
8155.99	A	16	10.89	12.70	1-	
5438.83	D	(8)	10.89	12.96	3-2	$3^5P-6^5g^o$
5435.76	D	(8)	10.69	12.96	2-2	(11)
5435.18	D	(5)	10.89	12.96	1-2	

I A	Laboratory Ref	Int	E P Low	E P High	J	Multiplet (No)
I continued						
1330.66	D	(10)	10.69	13.01	3-	$3^5P-5^5D^o$
1329.59	D	(7)	10.69	13.01	2-	(12)
1328.98	D	(6)	10.69	13.01	1-	
1020.13	D	(5)	10.69	13.15	3-2	$3^5P-7^5S^o$
1019.34	D	(4)	10.69	13.15	2-2	(13)
1018.78	D	(3)	10.69	13.15	1-2	
1988.76	D	(6)	10.69	13.18	3-	$3^5P-6^5D^o$
1967.86	D	(5)	10.69	13.18	2-	(14)
1987.40	D	(4)	10.69	13.18	1-	
1803.00	D	(4)	10.69	13.26	3-2	$3^5P-8^5S^o$
1802.20	D	(3)	10.69	13.26	2-2	(15)
1801.80	D	(2)	10.69	13.26	1-2	
1773.76	D	(5)	10.69	13.28	3-	$3^5P-7^5D^o$
1772.89	D	(4)	10.69	13.28	2-	(18)
1772.54	D	(3)	10.69	13.28	1-	
1873.70	D	(3)	10.69	13,34	3-2	$3^5P-9^5S^o$
1672.75	D	(3d)	10.69 10.69	13.34 13.34	2-2 1-2	(17)
1655.38	D	(4)	10.89	13.35	3-	$3^5P-8^5D^o$
1654.56	D	(3)	10.69	13.35	2-	(18)
1654.23	D	(2)	10.69	13.35	1-	
7995.12	A	9	10.94	12.49	2-3	$3^3P-3s'\ ^3D^o$
7987.00	A	7	10.94	12.49	1-2	(19)
7982.41	A	5	10.94	12.49	0-1	
7987.34	A	4	10.94	12.49	2-2	
7981.97	A	4	10.94	12.49	1-1	
7254.47	A	17	10.94	12.84	2-1	$3^3P-5^3S^o$
7254.19	A	15	10.94	12.84	1-1	(20)
7254.47	A	17	10.94	12.64	0-1	
7002.22	A	17	10.94	12.70	2-	$3^3P-4^3D^o$
7001.93	A	15	10.94	12.70	1-	(21)
7002.22	A	17	10.94	12.70	0-	
6046.46	A	10	10.94	12.98	2-1	$3^3P-6^3S^o$
6046.26	A	8	10.94	12.98	1-1	(22)
6046.46	A	10	10.94	12.98	0-1	

I A	Laboratory Ref	Int	E P Low	E P High	J	Multiplet (No)
O I continued						
*5958.63	A	9	10.94	13.01	2-	$3^3P-5^3D^o$
5958.46	A	7	10.94	13.01	1-	(23)
*5958.63	A	9	10.94	13.01	0-	
5554.94	D	(6d)	10.94	13.16	2-1	$3^3P-7^3S^o$
						(24)
5512.71	D	(5d)	10.94	13.18	2-	$3^3P-6^3D^o$
						(25)
5299.00	D	(5)	10.94	13.27	2-1	$3^3P-8^3S^o$
						(26)
5275.08	D	(4)	10.94	13.28	2-	$3^3P-7^3D^o$
						(27)
*5146.06	D	(5)	10.94	13.34	2-1	$3^3P-9^3S^o$
						(28)
*5130.53	D	(3)	10.94	13.35	2-	$3^3P-8^3D^o$
						(29)
3954.887	C	10	10.94	14.06	2-2	$3^3P-3s''\ ^3P^o$
3952.982	C	1	10.94	14.06	1-1	(30)
*3953.056	C	2	10.94	14.06	2-1	
3951.987	C	3	10.94	14.06	1-0	
3954.596	C	5	10.94	14.06	1-2	
*3953.058	C	2	10.94	14.06	0-1	
*6324.84	A	3	12.03	13.99	(-3 -2	$3^3D^o-3p'\ ^3D$
6323.39	A	1	12.03	13.99	-1	(31)
7025.52	A	3	12.31	14.06	-2	$4^3P-3s''\ ^3P^o$
						(32)
4233.32	D	7	12.31	15.22	-2	$4^3P-3d'\ ^3P^o$
4222.78	D	5	12.31	15.23	-1	(33)
4217.09	D	4	12.31	15.23	-0	
*8221.84	A	15	12.49	13.99	3-3	$3s'\ ^3D^o-3p'\ ^3D$
*8230.01	A	10	12.49	13.99	2-2	(34)
8232.99	A	13	12.49	13.99	1-1	
*8221.84	A	15	12.49	13.99	3-2	
8227.64	A	11	12.49	13.99	2-1	
*8230.01	A	10	12.49	13.99	2-3	
8235.31	A	5	12.49	13.99	1-2	

I A	Laboratory Ref	Int	E P Low	E P High	J	Multiplet (No)
O I continued						
7947.56	A	12	12.49	14.04	3-4	$3s'\ ^3D^o-3p'\ ^3F$
7950.83	A	10	12.49	14.04	2-3	(35)
7952.18	A	9	12.49	14.04	1-2	
7943.15	A	6	12.49	14.04	3-3	
7947.204	C	3	12.49	14.04	2-2	
7939.49	A	1	12.49	14.04	3-2	
3823.469	C	10	12.49	15.71	3-3	$3s'\ ^3D^o-3p''\ ^3D$
3824.435	C	3	12.49	15.71	2-2	(36)
3825.090	C	3	12.49	15.71	1-1	
3822.63	P		12.49	15.71	3-2	
3825.249	C	4	12.49	15.71	2-3	
3825.530	C	1	12.49	15.71	1-2	
8820.45	A	15	12.67	14.07	2-3	$3s'\ ^1D^o-3p'\ ^1F$
						(37)
7156.80	A	12	12.87	14.40	2-2	$3s'\ ^1D^o-3p'\ ^1D$
						(38)
*5146.06	D	(5)	12.82	15.22	-2	$5^3P-3d'\ ^3P^o$
*5130.53	D	(3)	12.82	15.23	-1	(39)
5750.424	C	5	13.07	15.22	-2	$6^3P-3d'\ ^3P^o$
5731.103	C	3	13.07	15.23	-1	(40)
5720.613	C	1	13.07	15.23	-0	
9156.02	A	4	13.99	15.33	3-4	$3p'\ ^3D-3d'\ ^3F^o$
						(41)
*7706.77	A	5	13.99	15.59	3-2	$3p'\ ^3D-sp^5\ ^3P^o$
7863.45	A	3	13.99	15.60	2-1	(42)
7839.99	A	1	13.99	15.60	1-0	
*7706.77	A	5	13.99	15.59	2-2	
7665.48	A	1	13.99	15.60	1-1	
6106.25	A	4	13.99	16.01	3-4	$3p'\ ^3D-4d'\ ^3P^o$
						(43)
*5995.28	A	3	13.99	18.04	3-2	$3p'\ ^3D-4d'\ ^3P^o$
5991.93	A	2	13.99	16.05	2-1	(44)
5991.34	A	1	13.99	16.05	1-0	
*5995.28	A	3	13.99	16.04	2-2	
5993.18	A	1	13.99	16.05	1-1	

O I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
9522.01	A	4	14.04	15.33	4-4	3p' ^{3}F-3d' ^{3}F° (45)
9499.39	A	0	14.04	15.34	4-4	3p' ^{3}F-3d' ^{1}G° (46)
9505.67	A	5	14.04	15.34	3-4	
•9498.04	A	8	14.04	15.34	4-5	3p' ^{3}F-3d' ^{3}G° (47)
9487.49	A	6	14.04	15.34	3-4	
•9498.04	A	8	14.04	15.34	2-3	
6266.89	A	3	14.04	16.01	4-4	3p' ^{3}F-4d' ^{3}F° (48)
6264.55	A	3	14.04	16.01	3-4	3p' ^{3}F-4d' ^{1}G° (49)
•6261.55	A	6	14.04	16.01	4-5	3p' ^{3}F-4d' ^{3}G° (50)
6256.84	A	4	14.04	16.01	3-4	
•6261.55	A	6	14.04	16.01	2-3	
•5410.76	F	(4)	14.04	16.32	4-4	3p' ^{3}F-5d' ^{3}F° (51)
•5410.76	F	(4)	14.04	16.32	3-4	3p' ^{3}F-5d' ^{1}G° (52)
5408.59	D	(4)	14.04	16.32	4-5	3p' ^{3}F-5d' ^{3}G° (53)
5404.87	F	(3)	14.04	16.32	3-4	
8426.326	C	4	14.06	15.53	2-3	3s" ^{3}P°-4p' ^{3}D (54)
8428.342	C	2	14.06	15.53	1-2	
8429.128	C	1	14.06	15.53	0-1	
8420.968	C	1	14.06	15.53	2-2	
8424.730	C	1	14.06	15.53	1-1	
7476.45	A	12	14.06	15.71	2-3	3s" ^{3}P°-3p" ^{3}D (55)
7479.06	A	8	14.06	15.71	1-2	
7480.66	A	8	14.06	15.71	0-1	
7473.23	A	5	14.06	15.71	2-2	
7477.21	A	7	14.06	15.71	1-1	
7471.36	A	2	14.06	15.71	2-1	
9760.65	A	5	14.07	15.34	3-4	3p' ^{1}F-3d' ^{1}G° (56)
9741.49	A	4	14.07	15.34	3-4	3p' ^{1}F-3d' ^{3}G° (57)
9677.41	A	1	14.07	15.35	3-3	3p' ^{1}F-3d' ^{1}F° (58)
6374.31	A	4	14.07	16.01	3-4	3p' ^{1}F-4d' ^{1}G° (59)
6366.33	A	3	14.07	16.01	3-4	3p' ^{1}F-4d' ^{3}G° (60)
6351.17	A	0	14.07	16.02	3-3	3p' ^{1}F-4d' ^{1}F° (61)
5492.8	F	(3)	14.07	16.32	3-4	3p' ^{1}F-5d' ^{1}G° (62)
5486.6	F	(3)	14.07	16.32	3-4	3p' ^{1}F-5d' ^{3}G° (63)
7886.31	A	4	14.31	15.38	1-2	3s" ^{1}P°-3p" ^{1}D (64)
6653.78	A	5	14.31	16.16	1-0	3s" ^{1}P°-3p" ^{1}S (65)

O II I P 35.00 Anal A List A Mar 1944

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4649.139	A	10	22.90	25.55	2½-3½	3s^{4}P-3p^{4}D° (1)
4641.811	A	9	22.88	25.54	1½-2½	
4638.854	A	6	22.87	25.53	½-1½	
4676.234	A	8	22.90	25.54	2½-2½	
4661.635	A	9	22.88	25.53	1½-1½	
4650.841	A	6	22.87	25.52	½- ½	
4696.36	8	2	22.90	25.53	2½-1½	
4673.75	8	4	22.88	25.52	1½- ½	
4349.426	A	8	22.90	25.74	2½-2½	3s^{4}P-3p^{4}P° (2)
4336.865	A	6	22.88	25.73	1½-1½	
4325.77	B	3	22.87	25.72	½- ½	
4366.896	A	7	22.90	25.73	2½-1½	
4345.562	A	7	22.88	25.72	1½- ½	
4319.631	A	8	22.88	25.74	1½-2½	
4317.139	A	8	22.87	25.73	½-1½	
3749.49	8	9	22.90	26.19	2½-1½	3s^{4}P-3p^{4}8° (3)
3727.33	B	8	22.88	26.19	1½-1½	
3712.75	8	7	22.87	26.19	½-1½	
6721.35	8	5	23.34	25.18	1½- ½	3s^{2}P-3p^{2}8° (4)
6640.90	B	4	23.32	25.18	½- ½	
4414.909	A	10	23.34	28.14	1½-2½	3s^{2}P-3p^{2}D° (5)
4416.975	A	8	23.32	26.11	½-1½	
4452.377	A	6	23.34	26.11	1½-1½	
3273.263	A	10	23.34	26.45	1½-1½	3s^{2}P-3p^{2}P° (8)
3954.372	A	7	23.32	26.44	½- ½	
3982.719	A	5	23.34	28.44	1½- ½	
3945.048	A	5	23.32	28.45	½-1½	
3496.27	C	1	25.18	28.71	½-1½	3p^{2}8°-3d^{4}P (7)
3488.18	C	0	25.18	28.71	½- ½	
3474.94	B	1	25.18	28.73	½- ½	3p^{2}8°-3d^{4}D (8)
3390.25	8	8	25.18	28.82	½-1½	3p^{2}8°-3d^{2}P (9)
3377.20	B	7	25.18	28.83	½- ½	
4075.868	A	10	25.55	28.58	3½-4½	3p^{4}D°-3d^{4}F (10)
4072.164	A	8	25.54	28.57	2½-3½	
4089.897	A	6	25.53	28.56	1½-2½	
4069.636	A	4	25.52	28.55	½-1½	
4092.940	A	5	25.55	28.57	3½-3½	
4085.124	A	3	25.54	28.56	2½-2½	
4078.862	A	4	25.53	28.55	1½-1½	
4108.03	B	0	25.55	28.58	3½-2½	
4094.18	8	0	25.54	28.55	2½-1½	

O II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3926.58	P		25.55	28.70	3½-2½	3p^{4}D°-3d^{4}P (11)
3896.30	B	1	25.54	28.71	2½-1½	
3872.45	B	1	25.53	28.71	1½- ½	
3907.45	B	4	25.54	28.70	2½-2½	
3882.45	B	1	25.53	28.71	1½-1½	
•3864.13	C	1	25.52	28.71	½- ½	
3893.53	B	2	25.53	28.70	1½-2½	
3874.10	B	2	25.52	28.71	½-1½	
3882.197	A	7	25.55	28.73	3½-3½	3p^{4}D°-3d^{4}D (12)
3864.45	B	5	25.54	28.73	2½-2½	
3851.04	B	3	25.53	28.73	1½-1½	
3847.89	B	3	25.52	28.73	½- ½	
3883.15	B	3	25.55	28.73	3½-2½	
3864.68	B	1	25.54	28.73	2½-1½	
3856.16	B	5	25.53	28.73	1½- ½	
3863.50	B	2	25.54	28.73	2½-3½	
3850.81	B	2	25.53	28.73	1½-2½	
3842.82	B	3	25.52	28.73	½-1½	
3851.47	C	0	25.55	28.76	3½-3½	3p^{4}D°-3d^{2}F (13)
3857.18	B	4	25.54	28.74	2½-2½	
3875.82	B	4	25.55	28.74	3½-2½	
3833.10	B	3	25.54	28.76	2½-3½	
3843.58	B	3	25.53	28.74	1½-2½	
3134.82	B	10 1	25.55	29.49	3½-2½	3p^{4}D°-4s^{4}P (14)
3138.44	B	8 1	25.54	29.47	2½-1½	
3139.77	B	4 1	25.53	29.46	1½- ½	
3132.62	B	6 1	25.54	29.49	2½-2½	
3129.44	B	7 1	25.53	29.47	1½-1½	
3134.32	B	3 1	25.52	29.46	½- ½	
3113.71	B	1 1	25.53	29.49	1½-2½	
3124.02	B	2 1	25.52	29.47	½-1½	
4590.971	A	9	25.55	28.24	2½-3½	3s' ^{2}D-3p' ^{2}F° (15)
4596.174	A	8	25.55	28.24	1½-2½	
4351.269	A	6	25.55	28.39	2½-2½	3s' ^{2}D-3p' ^{2}P° (16)
4347.425	A	5	25.55	28.39	1½-1½	
3911.960	A	10	25.55	28.71	2½-1½	3s' ^{2}D-3p' ^{2}P° (17)
3919.287	A	6	25.55	28.70	1½- ½	
3912.088	B	2	25.55	28.71	1½-1½	
•4357.25	B	0	25.74	28.57	2½-3½	3p^{4}P°-3d^{4}F (18)
4169.230	A	4	25.74	28.70	2½-2½	3p^{4}P°-3d^{4}P (19)
4140.74	B	0	25.73	28.71	1½-1½	
4131.48	B	4	25.72	28.71	½- ½	
4156.54	B	3	25.74	28.71	2½-1½	
4139.34	B	2	25.73	28.71	1½- ½	
4153.302	A	7	25.73	28.70	1½-2½	
4132.806	A	6	25.72	28.71	½-1½	
4119.221	A	8	25.74	28.73	2½-3½	3p^{4}P°-3d^{4}D (20)
4104.743	A	5	25.73	28.73	1½-2½	
•4097.260	A	4n	25.72	28.73	½-1½	
4120.279	A	3	25.74	28.73	2½-2½	
4105.000	A	7	25.73	28.73	1½-1½	
4103.017	A	5	25.72	28.73	½- ½	
4120.554	A	2	25.74	28.73	2½-1½	
4110.795	A	3	25.73	28.73	1½- ½	
4084.66	B	1	25.74	28.76	2½-3½	3p^{4}P°-3d^{2}F (21)
4098.543	A	3	25.73	28.74	1½-2½	
4112.029	A	4	25.74	28.74	2½-2½	
3967.441	A	1	25.72	28.83	½- ½	3p^{4}P°-3d^{2}P (22)
3985.46	C	0	25.72	28.82	½-1½	
3287.59	B	9 1	25.74	29.49	2½-2½	3p^{4}P°-4s^{4}P (23)
3295.13	B	4 1	25.73	29.47	1½-1½	
3301.56	B	3 1	25.72	29.46	½- ½	
3305.15	B	6 1	25.74	29.47	2½-1½	
3306.60	B	6 1	25.73	29.46	1½- ½	
3277.69	B	7 1	25.73	29.49	1½-2½	
3290.13	B	5 1	25.72	29.47	½-1½	
4751.34	B	4	26.14	28.73	2½-3½	3p^{3}D°-3d^{4}D (24)
4710.04	B	5	26.11	28.73	1½-2½	
4752.70	B	2	26.14	28.73	2½-2½	
4705.355	A	8	26.14	28.76	2½-3½	3p^{3}D°-3d^{2}F (25)
•4699.21	B	7	26.11	28.74	1½-2½	
4741.71	B	3	26.14	28.74	2½-2½	
4395.95	B	7	26.14	28.94	2½-2½	3p^{3}D°-3d^{2}D (26)
4369.28	B	4	26.11	28.94	1½-1½	
4406.02	B	1	26.14	28.94	2½-1½	
4359.38	B	1	26.11	28.94	1½-2½	
3470.81	B	8	26.14	29.69	2½-1½	3p^{3}D°-4s^{3}P (27)
3470.42	B	5	26.11	29.67	1½- ½	
3447.98	B	5	26.11	29.89	1½-1½	
4924.60	B	8	28.19	28.70	1½-2½	3p^{4}S°-3d^{4}P (28)
4906.88	B	5	26.19	28.71	1½-1½	
4890.93	B	4	26.19	28.71	1½- ½	
4856.49	B	2	28.19	28.73	1½-2½	3p^{4}8°-3d^{4}D (29)
4856.76	C	2	26.19	28.73	1½-1½	
4884.95	B	3	26.19	28.73	1½- ½	
4845.01	B	1	28.19	28.74	1½-2½	3p^{4}8°-3d^{2}F (30)
3739.92	B	8 1	26.19	29.49	1½-2½	3p^{4}8°-4s^{4}P (31)
3782.83	B	5 1	26.19	29.47	1½-1½	
3777.60	B	4 1	28.19	29.46	1½- ½	
5208.73	B	5	28.45	28.82	1½-1½	3p^{2}P°-3d^{2}P (32)
5160.02	B	4	26.44	28.83	½- ½	
5176.00	B	2	26.45	28.83	1½- ½	
5190.56	B	3	26.44	28.82	½-1½	

O II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4943.06	B	7	26.45	28.94	1½-2½	3p^{2}P°-3d^{2}D (33)
4941.12	B	5	26.44	28.94	½-1½	
4955.78	B	3	26.45	28.94	1½-1½	
3803.14	B	6 1	26.45	29.69	1½-1½	3p^{2}P°-4s^{2}P (34)
3821.68	B	4 1	26.44	29.67	½- ½	
3830.45	B	4 1	26.45	29.67	1½- ½	
3794.48	B	3 1	26.44	29.69	½-1½	
4448.21	B	6	28.24	31.01	3½-3½	3p' ^{2}F°-3d' ^{2}G (35)
4443.05	B	5	28.24	31.01	2½-2½	
4189.788	A	10	28.24	31.18	3½-4½	3p' ^{2}F°-3d' ^{2}G (36)
4185.456	A	8	28.24	31.18	2½-3½	
4113.82	B	1	28.24	31.24	3½-2½	3p' ^{2}F°-3d' ^{2}D (37)
4110.20	B	1	28.24	31.24	2½-1½	
3741.69	C	0	28.24	31.54	3½-3½	3p' ^{2}F°-4d^{2}F (38)
3273.52	B	7 1	28.24	32.01	3½-2½	3p' ^{2}F°-4s' ^{2}D (39)
3270.98	B	7 1	28.24	32.01	2½-1½	
•4699.21	B	7	28.39	31.01	2½-3½	3p' ^{2}P°-3d' ^{2}F (40)
4703.18	B	3	28.39	31.01	1½-2½	
4698.48	C	1	28.39	31.01	2½-2½	
4327.48	B	3	28.39	31.24	2½-2½	3p' ^{2}P°-3d' ^{2}D (41)
4331.89	B	2	28.39	31.24	1½-1½	
4327.89	B	0	28.39	31.24	2½-1½	
4331.47	B	0	28.39	31.24	1½-2½	
4192.50	B	2	28.39	31.33	2½-1½	3p' ^{2}P°-3d' ^{2}P (42)
4198.72	B	1	28.39	31.33	1½- ½	
4196.26	C	00	28.39	31.33	1½-1½	
3963.13	B	0	28.39	31.50	2½-1½	3p' ^{2}P°-4d^{2}P (43)
3407.38	B	7 1	28.39	32.01	2½-	3p' ^{2}P°-4s' ^{2}D (44)
3409.84	B	6 1	28.39	32.01	1½-	
6895.29	C	5	28.58	30.37	4½-3½	3d^{4}F-4p^{4}D° (45)
6906.54	C	4	28.57	30.36	3½-2½	
6910.75	C	3	28.56	30.35	2½-1½	
6908.11	C	2	28.55	30.34	1½- ½	
6846.97	C	1	28.57	30.37	3½-3½	
6869.74	C	1	28.56	30.36	2½-2½	
6885.07	C	1	28.55	30.35	1½-1½	
4098.27	B	0n	28.55	31.56	1½-2½	3d^{4}F-4f^{2}D° (46)
4107.07	B	1n	28.56	31.57	2½-3½	3d^{4}F-4f^{4}D° (47)
4089.295	A	4n	28.58	31.60	4½-5½	3d^{4}F-4f^{4}G° (48)
•4097.260	A	4n	28.57	31.58	3½-4½	
4095.63	B	0n	28.56	31.57	2½-3½	
4087.16	B	2n	28.55	31.57	1½-2½	
4108.75	B	0n	28.57	31.57	3½-3½	
4096.18	C	0d	28.56	31.57	2½-2½	
4071.20	B	0	28.57	31.60	3½-4½	3d^{4}F-4f^{2}G° (49)
4083.907	A	2n	28.56	31.58	2½-3½	
4062.90	B	1n	28.58	31.62	4½-4½	3d^{4}F-4f^{4}F° (50)
4048.22	B	1n	28.57	31.62	3½-3½	
4041.31	C	0d	28.56	31.61	2½-2½	
4033.18	C	0d	28.55	31.61	1½-1½	
•4054.10	C	0d	28.57	31.61	3½-2½	
4046.15	C	00d	28.57	31.62	3½-4½	
4044.96	C	0d	28.57	31.62	3½-3½	3d^{4}F-4f^{2}F° (51)
4035.09	C	0d	28.56	31.62	2½-2½	
4026.40	B	0n	28.55	31.62	1½-2½	
3371.85	B	2n	28.58	32.24	4½-3½	3d^{4}F-5p^{4}D° (52)
3375.77	B	0	28.57	32.23	3½-2½	
3360.15	B	00n	28.57	32.24	3½-3½	
3367.00	B	00n	28.56	32.23	2½-2½	
3370.23	B	00n	28.55	32.22	1½-1½	
4317.65	C	0	28.71	31.56	1½-2½	3d^{4}P-4f^{2}D° (53)
4307.31	B	1n	28.71	31.58	½-1½	
4303.82	B	5n	28.70	31.57	2½-3½	3d^{4}P-4f^{4}D° (54)
4294.82	B	3n	28.71	31.58	1½-2½	
4281.40	B	0n	28.70	31.58	2½-2½	
4283.82	C	2d	28.71	31.59	1½-1½	
4288.83	B	1n	28.71	31.59	½- ½	
•4276.71	B	1n	28.71	31.59	1½- ½	
4291.25	B	1n	28.70	31.57	2½-3½	3d^{4}P-4f^{4}G° (55)
4305.53	B	0	28.71	31.57	1½-2½	
3013.37	B	3	28.70	32.79	2½-3½	3d^{4}P-5f^{4}D° (56)
4871.58	B	5	28.71	31.24	1½-2½	3p' ^{2}P°-3d' ^{2}D (57)
4861.03	B	3	28.70	31.24	½-1½	
4701.23	B	2	28.71	31.33	1½-1½	3p' ^{2}P°-3d' ^{2}P (58)
4691.47	B	1	28.70	31.33	½- ½	
4701.76	B	0	28.71	31.33.	1½- ½	
4690.97	B	0	28.70	31.33	½-1½	
•4469.32	B	3	28.71	31.47	1½-2½	3p' ^{2}P°-4d^{4}D (59)
4414.37	C	1	28.71	31.50	1½-1½	3p' ^{2}P°-4d^{2}P (60)
4328.82	B	2	28.71	31.56	1½- ½	3p' ^{2}P°-3d' ^{2}S (61)
4319.93	B	1	28.70	31.58	½- ½	
3735.94	B	3	28.71	32.01	1½-2½	3p' ^{2}P°-4s' ^{2}D (62)
3729.34	B	2	28.70	32.01	½-1½	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
O II continued						
4334.29	B	0n	(28.73	31.58	2½-1½	3d⁴D-4f²D°
			28.73	31.58	1½-1½	(63)
4357.25	B	0	28.73	31.56	1½-2½	
4358.40	B	0	28.73	31.57	3½-3½	3d⁴D-4f⁴D°
4334.29	B	0n	28.73	31.58	2½-2½	(64)
4308.98	B	1n	28.73	31.59	½- ½	
4315.35	C	0d	28.73	31.59	1½- ½	
4357.25	B	0	28.73	31.57	2½-3½	
4315.35	C	0d	28.73	31.59	½-1½	
4332.78	B	1n	28.73	31.58	3½-4½	3d⁴D-4f⁴G°
4344.42	B	0n	28.73	31.57	2½-3½	(65)
*4331.13	C	0d	28.73	31.58	2½-3½	3d⁴D-4f²G°
						(66)
4275.52	B	4n	28.73	31.62	3½-4½	3d⁴D-4f⁴F°
4276.71	B	1n	28.73	31.62	2½-3½	(87)
4282.98	B	1n	28.73	31.61	1½-2½	
*4277.40	B	1n	28.73	31.81	½-1½	
4277.90	B	1n	28.73	31.62	3½-3½	
4283.13	C	0d	28.73	31.81	2½-2½	
4283.75	B	0n	28.73	31.61	1½-1½	
4274.13	C	00d	28.73	31.62	3½-3½	3d⁴D-4f²F°
4276.21	C	0d	28.73	31.62	2½-2½	(68)
*4277.40	B	1n	28.73	31.62	3½-2½	
4273.17	B	0n	28.73	31.62	2½-3½	
4275.90	C	0d	28.73	31.62	1½-2½	
3516.92	B	0n	28.73	32.24	3½-3½	3d⁴D-5p⁴D°
3533.97	B	00n	28.73	32.23	3½-2½	(69)
3495.44	B	0n	28.73	32.26	3½-2½	3d⁴D-5p⁴P°
3506.02	B	0n	28.73	32.25	2½-1½	(70)
3494.86	B	00n	28.73	32.26	2½-2½	
3501.67	B	00n	28.73	32.25	½-1½	
3453.31	B	0n	28.73	32.31	2½-1½	3d⁴D-5p²D°
						(71)
3039.78	B	1	28.73	32.79	3½-3½	?3d⁴D-5f⁴D°
3039.51	B	1	28.73	32.79	2½-3½	(72)
3028.82	B	1	28.73	32.81	3½-4½	3d⁴D-5f⁴G°
						(73)
3007.08	B	3	28.73	32.84	3½-4½	3d⁴D-5f⁴F°
3007.74	C	3dd	28.73	32.84	2½-3½	(74)
3008.28	B	1	28.73	32.84	3½-3½	
*4343.36	C	0d	28.74	31.58	2½-2½	?3d²F-4f⁴D°
*4331.13	C	0d	28.74	31.59	2½-1½	(75)
4371.85	B	2n	28.76	31.58	3½-4½	3d²F-4f⁴G°
4353.60	B	1n	28.74	31.57	2½-3½	(76)
4342.00	B	4n	28.78	31.60	3½-4½	3d²F-4f²G°
4340.36	B	2n	28.74	31.58	2½-3½	(77)
4313.43	B	1n	28.76	31.62	3½-4½	3d²F-4f⁴F°
4285.70	B	3n	28.74	31.62	2½-3½	(78)
4315.80	C	00d	28.76	31.62	3½-3½	
4292.23	B	0n	28.74	31.61	2½-2½	
4312.10	B	0n	28.78	31.62	3½-3½	3d²F-4f²F°
*4315.35	C	0d	28.78	31.62	3½-2½	(79)
3500.5	B	00n	28.74	32.26	2½-2½	3d²F-5p⁴P°
						(80)
3457.99	B	1n	28.76	32.33	3½-2½	3d²F-5p²D°
3459.07	B	0n	28.74	32.31	2½-1½	(81)
3047.9	C	0dd	28.78	32.81	3½-4½	3d²F-5f⁴G°
						(82)
3032.08	B	2	28.78	32.83	3½-4½	3d²F-5f²G°
3032.50	B	1	28.74	32.81	2½-3½	(83)
3025.75	B	1	28.76	32.84	3½-4½	3d²F-5f⁴F°
						(84)
8627.82	C	3	28.82	30.66	1½-1½	3d²P-4p²P°
6878.19	C	0	28.83	30.68	½-1½	(85)
6666.94	C	1	28.82	30.67	1½- ½	
4491.25	B	3n	28.82	31.56	1½-2½	3d²P-4f²D°
4489.48	B	1n	28.83	31.58	½-1½	(86)
4468.32	B	2n	28.82	31.58	1½-2½	3d²P-4f⁴D°
4478.08	C	0d	28.83	31.59	½-1½	(87)
4477.88	B	2n	28.82	31.57	1½-2½	3d²P-4f⁴G°
						(88)
4707.80	C	0	28.94	31.56	2½-2½	3d²D-4f²D°
4669.53	B	0	28.94	31.58	1½-1½	(89)
4689.33	C	0	28.94	31.58	1½-2½	3d²D-4f⁴D°
						(90)
4677.00	C	0	28.94	31.58	2½-3½	3d²D-4f²G°
						(91)
4613.87	C	1d	28.94	31.62	2½-3½	3d²D-4f⁴F°
4610.14	B	3n	28.94	31.81	1½-2½	(92)
4821.28	C	0d	28.94	31.81	2½-2½	
4609.42	B	4n	28.94	31.82	2½-3½	3d²D-4f²F°
4602.11	B	2n	28.94	31.62	1½-2½	(93)
4813.11	C	0d	28.94	31.62	2½-2½	
4465.40	B	4	(30.29	33.08)	2½-3½	sp³3s⁸S°-
4467.88	B	4	(30.29	33.08)	1½-2½	sp³3p⁸P
*4489.32	B	3	(30.29	33.06)	2½-1½	(94)
3785.01	B	0n	30.88	33.94	1½-2½	?4p³P°-4d' ²D
						(95)
3374.77	B	00	30.88	34.34	1½-2½	4p³P°-5s' ²D
						(98)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
O II continued						
4060.58	B	3n	31.01	34.05	3½-4½	3d' ²F-4f' ²G°
4060.98	B	2n	31.01	34.05	2½-3½	(97)
*4054.10	C	0d	31.01	34.06	3½-3½	3d' ²F-4f' ²F°
4054.55	C	00d	31.01	34.06	2½-2½	(96)
4024.04	B	1n	31.01	34.08	—	3d' ²F-4f' ²D°
						(99)
4302.81	C	0d	31.18	34.05	4½-4½	3d' ²G-4f' ²G°
4303.06	C	0d	31.18	34.05	3½-3½	(100)
4253.74	C	4d	31.18	34.09	4½-5½	3d' ²G-4f' ²H°
4253.98	C	4d	31.18	34.09	3½-4½	(101)
4378.41	C	0	31.24	34.06	2½-3½	3d' ²D-4f' ²F°
4378.01	C	0	31.24	34.06	1½-2½	(102)
*4343.38	C	0d	31.24	34.08	2½-2½	3d' ²D-4f' ²D°
4342.83	C	1d	31.24	34.08	1½-1½?	(103)
4488.09	B	2n	31.33	34.08	1½-2½	3d' ²F-4f' ²D°
4487.72	B	0n	31.33	34.08	½-1½	(104)
4843.26	B	1n	31.56	34.10	1½-	3d' ²S-4f' ²P°
						(105)
4146.09	B	3	(33.06	38.03)	3½-4½	sp³3p⁶P-
4143.77	B	2	(33.06	36.03)	2½-3½	sp³3d⁶D°
4142.24	B	0	(33.06	36.03)	1½-2½	(106)
4145.90	B	0	(33.06	38.03)	3½-3½	
4143.52	B	1	(33.06	36.03)	2½-2½	
4141.96	C	1	(33.06	38.03)	1½-1½	
4142.08	C	1	(33.06	38.04)	1½- ½	
3218.10	C	2	(33.06	36.89)	3½-2½	sp³3p⁶P-
3216.76	C	1	(33.08	36.89)	2½-2½	sp³4s⁶S°
3218.08	C	0	(33.06	36.89)	1½-2½	(107)
Strongest Unclassified Lines Attributed to O II						
4506.50	B	2n				
3430.61	B	3n				
3419.87	B	2n				
3081.46	B	2n				
3006.82	B	3				
3006.04	B	2				
3005.82	B	2				

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Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4239.5	A	00	33.01	35.92	1-1	3s³P°-3p¹P
						(1)
3759.87	A	9	33.04	36.32	2-3	3s³P°-3p³D
3754.87	A	7	33.01	36.29	1-2	(2)
3757.21	A	5	32.99	36.28	0-1	
3791.26	A	6	33.04	36.29	2-2	
3774.00	A	6	33.01	36.28	1-1	
3810.96	A	2	33.04	36.28	2-1	
3340.74	A	6	33.04	38.73	2-1	3s³P°-3p³S
3312.30	A	5	33.01	38.73	1-1	(3)
3299.36	A	3	32.99	36.73	0-1	
3047.13	A	8	33.04	37.09	2-2	3s³P°-3p³P
3035.43	A	4	33.01	37.07	1-1	(4)
3059.30	A	6	33.04	37.07	2-1	
3043.02	A	5	33.01	37.06	1-0	
3023.45	A	5	33.01	37.09	1-2	
3024.57	A	4	32.99	37.07	0-1	
5592.37	A	8	33.71	35.92	1-1	3s¹P°-3p¹P
						(5)
2983.78	A	9	33.71	37.85	1-2	3s¹P°-3p¹D
						(6)
2983.66	A	1	35.92	40.05	1-2	3p¹P-3d³F°
						(7)
3385.46	A	10	36.32	40.10	3-4	3p³D-3d³F°
3260.98	A	8	36.29	40.08	2-3	(8)
3267.31	A	5	38.28	40.05	1-2	
3284.57	A	4	36.32	40.08	3-3	
3281.94	A	3	36.29	40.05	2-2	
3305.77	A	0	36.32	40.05	3-2	
3252.94	A	2	38.29	40.09	2-2	3p³D-3d¹D°
3238.57	A	5	36.28	40.09	1-2	(9)
3017.63	A	5	38.32	40.41	3-3	3p³D-3d³D°
3004.35	A	4	36.29	40.40	2-2	(10)
2998.51	A	3	36.28	40.40	1-1	
3024.38	A	1	36.32	40.40	3-2	
3008.79	A	3	36.29	40.40	2-1	
2997.71	A	2	36.29	40.41	2-3	
2992.11	A	2	36.28	40.40	1-2	
3363.83	A	1	38.73	40.40	1-2	3p³S-3d³D°
3389.40	A	00	36.73	40.40	1-1	(11)
3132.88	A	8	38.73	40.67	1-2	3p³S-3d³P°
3121.71	A	5	36.73	40.69	1-1	(12)
3115.73	A	4	36.73	40.69	1-0	
3440.39	A	4	36.82	40.41	2-3?	3p⁴ ¹D-3d³D°
						(13)
3715.08	A	8	37.09	40.41	2-3	3p³P-3d³D°
3707.24	A	6	37.07	40.40	1-2	(14)
3702.75	A	5	37.06	40.40	0-1	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
O III continued						
3725.30	A	3	37.09	40.40	2-2	3p³P-3d³D°
3714.03	A	2	37.07	40.40	1-1	(14)
3732.13	A	1	37.09	40.40	2-1	oont
3444.10	A	5	37.09	40.67	2-3	3p³P-3d³P°
3415.29	A	3	37.07	40.69	1-1	(15)
3430.60	A	4	37.09	40.89	2-1	
3408.13	A	1	37.07	40.69	1-0	
3428.67	A	3	37.07	40.87	1-2	
3405.74	A	2	37.06	40.69	0-1	
5508.11	A	1	37.85	40.09	2-2	3p¹D-3d¹D°
						(16)
3961.59	A	8	37.85	40.98	2-3	3p¹D-3d¹F°
						(17)
3816.75	A	1	37.85	41.08	2-1	3p¹D-3d¹P°
						(18)
5288.06	A	2	38.74	41.08	0-1	3p¹S-3d¹P°
						(19)
3034.32	A	0	41.08	45.15	1-1	3d¹P°-4p¹P
						(20)
3703.37	A	5	41.78	45.11	3-4	3s⁵P-3p⁵D°
3699.70	A	5	41.78	45.10	2-3	(21)
3695.37	A	4	41.74	45.08	1-2	
3720.86	A	3	41.78	45.10	3-3	
3712.48	A	2	41.76	45.08	2-2	
3704.73	A	3	41.74	45.08	1-1	
3734.80	A	1	41.78	45.08	3-2	
3721.95	A	1	41.76	45.08	2-1	
3709.52	A	2	41.74	45.07	1-0	
3350.99	A	4	41.78	45.46	3-3	3s⁵P-3p⁵P°
*3344.26	A	2	41.76	45.45	2-2	(22)
*3336.78	A	3	41.74	45.44	1-1	
3362.38	A	4	41.78	45.45	3-2	
3350.68	A	3	41.76	45.44	2-1	
3333.00	A	4	41.76	45.46	2-3	
*3330.40	A	4	41.74	45.45	1-2	
4081.10	A	1	43.24	46.27	2-3	3s³P-3p³D°
4073.90	A	0	43.22	46.25	1-2	(23)
3556.92	A	1	43.24	46.71	2-2	3s³P-3p³P°
						(24)
3455.12	A	5	45.11	48.68	4-5	3p⁵D°-3d⁵F
3450.94	A	4	45.10	48.67	3-4	(25)
m3448.05	P	0+	45.08	48.66	2-3	
3446.73	A	2	45.08	48.66	1-2	
3447.22	A	1	45.07	48.65	0-1	
3466.15	A	2	45.11	48.67	4-4	
3459.98	A	2	45.10	48.66	3-3	
3454.90	A	2	45.08	48.66	2-2	
3451.33	A	1	45.08	48.65	1-1	
3466.90	A	0	45.10	48.68	3-2	
3459.52	A	0	45.08	48.65	2-1	
3088.04	A	2	45.11	49.11	4-4	3p⁵D°-3d⁵D
3083.65	B	1	45.10	49.10	3-3	(26)
3075.19	B	0	45.08	49.10	2-2	
3095.81	B	00	45.11	49.10	4-3	
3084.63	B	0	45.10	49.10	3-2	
3074.68	B	00	45.08	49.10	2-1	
3068.06	B	00	45.08	49.10	1-0	
3075.95	B	0	45.10	49.11	3-4	
3074.15	B	0	45.08	49.10	2-3	
3068.68	B	0	45.08	49.10	1-2	
3065.01	B	00	45.07	49.10	0-1	
3384.95	A	4	45.46	49.11	3-4	3p⁵P°-3d⁵D
3382.69	A	3	45.45	49.10	2-3	(27)
3394.28	A	1	45.46	49.10	3-3	
3383.85	A	2	45.45	49.10	2-2	
3376.82	C	(1)	45.44	49.10	1-1	
3355.92	A	3	45.46	49.14	3-3	3p⁵P°-3d⁵P
*3336.78	A	3	45.45	49.15	2-2	(28)
3326.16	A	0	45.44	49.15	1-1	
3348.05	A	2	45.46	49.15	3-2	
3332.49	A	1	45.45	49.15	2-1	
*3344.28	A	2	45.45	49.14	2-3	
*3330.40	A	4	45.44	49.15	1-2	
3279.97	C	(1)	46.05	49.82	0-1	4p¹S-5d¹P°
						(29)
3728.82	C	(1)	46.27	49.58	3-4	3p³D°-3d³F
3728.49	C	(0)	46.25	49.56	2-3	(30)
3729.70	A	1	46.24	49.55	1-2	
3215.97	B	1	46.27	50.11	3-3	3p³D°-3d³D
3207.12	P		46.25	50.10	2-2	(31)
3200.95	A	1	46.24	50.10	1-1	
4529.7	A	00	46.37	49.10	2-3	3p⁵S°-3d⁵D
						(32)
4461.56	A	1	46.37	49.14	2-3	3p⁵S°-3d⁵P
m4447.82	P	0+	46.37	49.15	2-2	(33)
4440.1	A	0	46.37	49.15	2-1	
4555.30	A	0	46.71	49.42	2-2	3p³P°-3d³P
						(34)
3638.70	A	3	48.71	50.11	2-3	3p³P°-3d³D
3646.84	A	2	46.72	50.10	1-2	(35)
3653.00	A	1	46.72	50.10	0-1	
3645.20	A	1	46.71	50.10	2-2	
3650.70	A	0	46.72	50.10	1-1	
3649.20	A	00	46.71	50.10	2-1	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
O III continued						
4569.50	A	1n	52.63	55.33	2-3?	$3p^1D^o-3d^1F$ (36)
4474.95	A	1n	52.63	55.39	2-2?	$3p^1D^o-3d^1D$ (37)
O IV I P 77.08 Anal B List A Mar 1943						
3063.46	B	6	44.15	48.18	½-1½	$3^2S-3^2P^o$ (1)
3071.66	B	5	44.15	48.17	½-½	
3411.76	B	4	48.18	51.79	1½-2½	$3^2P^o-3^2D$ (2)
3403.58	B	3	48.17	51.79	½-1½	
3413.71	A	1	48.18	51.79	1½-1½	
3385.55	B	(6)	54.19	57.84	2½-3½	$3s^4P^o-3p^4D$ (3)
3381.28	B	(4)	54.16	57.81	1½-2½	
3381.33	P		54.14	57.79	½-1½	
3409.75	B	(2)	54.19	57.81	2½-2½	
3396.83	B	(2)	54.16	57.79	1½-1½	
3390.37	P		54.14	57.78	½-½	
3425.57	B	(0)	54.19	57.79	2½-1½	
3405.97	P		54.16	57.78	1½-½	
3349.11	A	3	55.93	59.62	1½-2½	$3s^2P^o-3p^2D$ (4)
3348.08	A	2	55.90	59.59	½-1½	
3378.09	A	0	55.93	59.59	1½-1½	
3052.54	A	1	55.93	59.97	1½-½	$3s^2P^o-3p^2S$ (5)
3028.04	A	0	55.90	59.97	½-½	
•3736.78	B	(4)	57.84	61.14	3½-4½	$3p^4D-3d^4F^o$ (6)
3729.03	B	(3)	57.81	61.12	2½-3½	
•3725.81	B	(2)	57.79	61.11	1½-2½	
			57.78	61.10	½-1½	
3758.45	B	(0)	57.84	61.12	3½-3½	
3744.73	B	(0)	57.81	61.11	2½-3½	
3736.78	B	(4)	57.79	61.10	1½-1½	
3774.38	P		57.84	61.11	3½-2½	
3755.82	P		57.81	61.10	2½-1½	
3209.64	B	(3)	57.84	61.68	3½-3½	$3p^4D-3d^4D^o$ (7)
3194.75	B	(1)	57.81	61.67	2½-2½	
3185.72	B	(0)	57.79	61.67	1½-1½	
3180.72	B	(0)	57.78	61.66	½-½	
3216.31	P		57.84	61.67	3½-2½	
3199.53	B	(1)	57.81	61.67	2½-1½	
3188.65	P		57.79	61.66	1½-½	
3188.17	P		57.81	61.68	2½-3½	
3180.98	P		57.79	61.67	1½-2½	
3177.80	B	(0)	57.78	61.67	½-1½	
3375.50	B	(3)	58.54	62.20	1½-2½	$3p^4S-3d^4P^o$ (8)
3362.63	P		58.54	62.21	1½-1½	
3354.31	A	—	58.54	62.22	1½-½	
4798.25	B	(5)	59.11	61.68	2½-3½	$3p^4P-3d^4D^o$ (9)
4783.43	B	(4)	59.09	61.67	1½-2½	
4772.57	B	(2)	59.08	61.67	½-1½	
4813.07	B	(1)	59.11	61.67	2½-2½	
4794.22	B	(2)	59.09	61.67	1½-1½	
4779.09	B	(2)	59.08	61.66	½-½	
4823.93	P		59.11	61.67	2½-1½	
4800.77	P		59.09	61.66	1½-½	
3995.17	B	(2)	59.11	62.20	2½-2½	$3p^4P-3d^4P^o$ (10)
3956.82	P		59.09	62.21	1½-1½	
3930.63	P		59.08	62.22	½-½	
3977.10	B	(1)	59.11	62.21	2½-1½	
3945.29	P		59.09	62.22	1½-½	
3974.66	P		59.09	62.20	1½-2½	
3942.14	B	(0)	59.08	62.21	½-1½	
5362.4	P		59.62	61.92	2½-2½	$3p^2D-3d^2D^o$ (11)
5305.3	P		59.59	61.91	1½-1½	
3563.36	A	2	59.62	63.08	2½-3½	$3p^2D-3d^2F^o$ (12)
3560.42	A	1	59.59	63.05	1½-2½	
3520.9	P		59.97	63.48	½-1½	$3p^2S-3d^2P^o$ (13)
3502.2	P		59.97	63.50	½-½	
3489.84	C	1	64.03	67.57	1½-2½	$3s'\ ^2P^o-3p'\ ^2D$ (14)
3492.24	C	0	64.03	67.57	½-1½	
4568	P		68.20	70.91	—	$5^2F^o-6^2D$ (15)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
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5114	P		69.29	71.70	0-1	$3^1S-3^1P^o$ (1)
3144.68	A	1	71.70	75.63	1-2	$3^1P^o-3^1D$ (2)
5600	P		(71.92	74.13)	2-3	$3^3P^o-3^3D$ (3)
5582	P		(71.91	74.12)	1-2	
5573	P		(71.91	74.12)	0-1	
5606	P		(71.92	74.12)	2-2	
5584	P		(71.91	74.12)	1-1	
5608	P		(71.92	74.12)	2-1	
4123.90	A	2	(80.63	83.62)	2-3	$3s^3P^o-3p^3D$ (4)
4120	P		(80.58	83.58)	1-2	
4123	P		(80.56	83.56)	0-1	
4179	P		(80.63	83.58)	2-2	
4151	P		(80.58	83.56)	1-1	
4211	P		(80.63	83.56)	2-1	
3275.67	A	0	(80.63	84.39)	2-1	$3s^3P^o-3p^3S$ (5)
3239	P		(80.58	84.39)	1-1	
3222	P		(80.56	84.39)	0-1	
3058.68	A	0	82.03	86.07	1-2	$3s^1P^o-3p^1D$ (8)
4554.28	A	0	83.04	85.75	1-2	$3p^1P-3d^1D^o$ (7)
3747	P		(83.62	86.91)	3-3	$3p^3D-3d^3D^o$ (8)
3717	P		(83.58	86.90)	2-2	
3701	P		(83.58	86.89)	1-1	
3762	P		(83.62	88.90)	3-2	
3726	P		(83.58	86.89)	2-1	
3703	P		(83.58	86.91)	2-3	
3692	P		(83.58	86.90)	1-2	
3298	P		(83.62	87.36)	3-2	$3p^3D-3d^3P^o$ (9)
3249	P		(83.58	87.38)	2-1	
3222	P		(83.56	87.39)	1-0	
3264	P		(83.58	87.36)	2-2	
3230	P		(83.56	87.38)	1-1	
3245	P		(83.56	87.36)	1-2	
4925	P		(84.39	86.90)	1-2	$3p^3S-3d^3D^o$ (10)
4940	P		(84.39	86.89)	1-1	
4158.76	A	0	(84.39	87.36)	1-2	$3p^3S-3d^3P^o$ (11)
4135.9	P		(84.39	87.38)	1-1	
4121.7	P		(84.39	87.39)	1-0	
6830	P		(85.11	86.91)	2-3	$3p^3P-3d^3D^o$ (12)
6790	P		(85.08	86.90)	1-2	
6767	P		(85.07	86.89)	0-1	
6878	P		(85.11	86.90)	2-2	
6819	P		(85.08	86.89)	1-1	
6909	P		(85.11	86.89)	2-1	
5473	P		(85.11	87.36)	2-2	$3p^3P-3d^3P^o$ (13)
5376	P		(85.08	87.38)	1-1	
5432	P		(85.11	87.38)	2-1	
5352	P		(85.08	87.39)	1-0	
5417	P		(85.08	87.36)	1-2	
5343	P		(85.07	87.38)	0-1	
6329	P		86.07	88.02	2-3	$3p^1D-3d^1F^o$ (14)
4522	P		86.07	88.79	2-1	$3p^1D-3d^1P^o$ (15)
3702	P		88.79	92.13	1-2	$3d^1P^o-4^1D$ (16)
7438	P		(89.15	90.81)	—	$4^3S-4^3P^o$ (17)
O VI I P 137.52 Anal A List A Feb 1943						
3811.35	A	2	79.01	82.25	½-1½	$3^2S-3^2P^o$ (1)
3834.24	A	1	79.01	82.23	½-½	
3068	P		123.46	127.49	½-	$6^2S-7^2P^o$ (2)
3622	P		123.84	127.25	—	$6^2P^o-7^2S$ (3)
3314	P		123.84	127.57	—	$6^2P^o-7^2D$ (4)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
O VI continued						
3509	P		123.97	127.49	—	$6^2D-7^2P^o$ (5)
3426	P		123.97	127.57	—	$6^2D-7^2F^o$ (6)
3438	P		123.98	127.57	—	$6^2F^o-7^2D$ (7)
3433	P		123.98	127.57	—	$6^2F^o-7^2G$ (8)
3434	P		123.98	127.57	—	$6^2G-7^2H^o$ etc (9)
4751	P		127.25	129.85	½-	$7^2S-8^2P^o$ (10)
5602	P		127.49	129.69	-½	$7^2P^o-8^2S$ (11)
5112	P		127.49	129.90	—	$7^2P^o-8^2D$ (12)
5410	P		127.57	129.85	—	$7^2D-8^2P^o$ (13)
5279	P		127.57	129.90	—	$7^2D-8^2F^o$ (14)
5298	P		127.57	129.90	—	$7^2F^o-8^2D$ (15)
5289	P		127.57	129.90	—	$7^2F^o-8^2G$ (16)
5292	P		127.57	129.90	—	$7^2G-8^2F^o$ (17)
5291	P		127.57	129.90	—	$7^2G-8^2H^o$ etc (18)
F I I P 17.35 Anal C List D May 1944						
7398.68	A	17	12.64	14.31	2½-2½	$3s^4P-3p^4P^o$ (1)
7482.72	A	11	12.68	14.33	1½-1½	
7514.93	A	9	12.70	14.34	½-½	
7331.95	A	15	12.64	14.33	2½-1½	
7425.64	A	14	12.68	14.34	1½-½	
7552.24	A	14	12.68	14.31	1½-2½	
7573.41	A	14	12.70	14.33	½-1½	
8856.02	A	16	12.64	14.44	2½-3½	$3s^4P-3p^4D^o$ (2)
6902.46	A	15	12.68	14.46	1½-2½	
6909.82	A	13	12.70	14.48	½-1½	
8773.97	A	11	12.64	14.46	2½-2½	
6834.28	A	12	12.68	14.48	1½-1½	
6870.22	A	12	12.70	14.49	½-½	
8708.37	A	7	12.64	14.48	2½-1½	
6795.52	A	9	12.68	14.49	1½-½	
6239.64	A	16	12.64	14.62	2½-1½	$3s^4P-3p^4S^o$ (3)
6348.50	A	15	12.68	14.62	1½-1½	
6413.86	A	14	12.70	14.62	½-1½	
7754.70	A	19	12.93	14.52	1½-2½	$3s^2P-3p^2D^o$ (4)
7800.22	A	18	12.97	14.55	½-1½	
7607.17	A	15	12.93	14.55	1½-1½	
7311.02	A	13	12.93	14.62	1½-½	$3s^2P-3p^2S^o$ (5)
7489.14	A	8	12.97	14.62	½-½	
7037.45	A	15	12.93	14.68	1½-1½	$3s^2P-3p^2P^o$ (6)
7127.88	A	14	12.97	14.70	½-½	
6966.35	A	10	12.93	14.70	1½-½	
7202.37	A	13	12.97	14.68	½-1½	
F II I P 34.84 Anal B List D May 1944						
3847.086	A	20	(21.81	25.02)	2-3	$3s^5S^o-3p^5P$ (1)
3849.987	A	15	(21.81	25.01)	2-2	
3851.667	A	10	(21.81	25.01)	2-1	
4024.727	A	20	22.57	25.64	1-2	$3s^3S^o-3p^3P$ (2)
4025.495	A	15	22.57	25.64	1-1	
4025.010	A	10	22.57	25.64	1-0	
3505.614	A	15	(25.02	28.54)	3-4	$3p^5P-3d^5D^o$ † (3)
3503.095	A	12	(25.01	28.54)	2-3	
3502.954	A	8	(25.01	28.54)	2-2	
3501.416	A	10	(25.01	28.54)	1-0	
4103.525	A	15	25.64	28.65	2-3	$3p^3P-3d^3D^o$ † (4)
4103.085	A	10	25.64	28.65	1-2	
4103.724	A	7	25.64	28.65	0-1	
4103.871	A	7	25.64	28.85	2-2	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
II continued						
109.173	A	8	26.15	29.18	3-3	3s' ^{3}P°-3p' ^{3}D†
118.547	A	7	26.16	29.16	2-2	(5)
119.219	A	7	26.16	29.16	1-1	
541.785	A	9	26.15	29.64	3-2	3s' ^{3}P°-3p' ^{3}P†
536.838	A	7	26.18	29.85	2-1	(8)
399.177	A	10	26.55	29.42	2-3	3s' ^{1}P°-3p' ^{1}F (7)
302.740	A	10	26.55	30.40	2-2	3s' ^{1}P°-3p' ^{1}D (8)
846.18	A	15n	(28.54	31.44)	—	3d^{5}D°-4f^{5}F (9)
447.18	A	12n	28.65	31.42	3-	3d^{3}D°-4f^{3}F†
446.71	A	10n	28.65	31.42	2-	(10)
640.891	A	9	29.32	32.71	4-4	3p' ^{3}F-3d' ^{3}F°†
641.985	A	8	29.32	32.71	-3	(11)
842.798	A	7	29.32	32.71	-2	
III I P 62.39 Anal A List D May 1944						
121.515	A	12	39.18	43.12	2½-3½	3s^{4}P-3p^{4}D°
115.689	A	10	39.12	43.08	1½-2½	(1)
113.579	A	8	39.10	43.06	½-1½	
146.962	A	8	39.18	43.08	2½-2½	
134.208	A	8	39.12	43.06	1½-1½	
124.762	A	8	39.10	43.05	½- ½	
185.86	P		39.16	43.06	2½-1½	
145.536	A	4	39.12	43.05	1½- ½	
174.125	A	12	40.11	43.99	1½-2½	3s^{2}P-3p^{2}D°
174.725	A	10	40.06	43.95	½-1½	(2)
213.972	A	6	40.11	43.95	1½-1½	
039.254	A	7	46.94	51.00	2½-3½	3p' ^{2}P°-3d' ^{2}F
039.746	A	8	46.95	51.01	1½-2½	(3)
034.54	A	1.5	48.94	51.01	2½-2½	
154.387	A	4	47.46	51.38	1½-2½	3p' ^{2}P°-3d' ^{2}D
142.777	A	3	47.45	51.38	½-1½	(4)
156.11	B	0	47.48	51.38	1½-1½	
IV See Introduction						
VI See Introduction						

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ne I I P 21.47 Anal A List C May 1944						
7032.4127	A	(10)	16.55	18.30	2-1	3s 1°-3p 1
6402.2455	B	(20)	16.55	18.48	2-3	(1) -3p 2
6334.4279	A	(10)	18.55	18.50	2-2	-3p 3
8217.2813	A	(15)	16.55	18.53	2-1	-3p 4
6143.0623	A	(12)	16.55	18.56	2-2	-3p 5
5975.5340	A	(12)	16.55	18.81	2-1	-3p 7
5944.8342	A	(10)	16.55	18.62	2-2	-3p 8
5881.8950	A	(20)	16.55	18.65	2-1	-3p 9
3472.5711	C	(10)	16.55	20.10	2-3	3s 1°-4p 2
3369.9081	C	(15)	16.55	20.21	2-1	(2) -4p 9
3369.8086	C	(10)	16.55	20.21	2-2	-4p 8
7245.1668	B	(10)	16.60	18.30	1-1	3s 2°-3p 1
6506.5279	A	(15)	16.60	18.50	1-2	(3) -3p 3
6382.9914	A	(12)	16.60	18.53	1-1	-3p 4
6074.3377	A	(10)	16.60	18.63	1-0	-3p 6
6029.9971	A	(10)	16.60	18.65	1-1	-3p 9
5400.5620	B	(50)	16.60	18.88	1-0	-3p 10
3417.9036	C	(10)	16.60	20.21	1-2	3s 2°-4p 8 (4)
6266.4950	A	(15)	16.64	18.61	0-1	3s 3°-3p 7
6163.5939	A	(12)	16.64	18.65	0-1	(5) -3p 9
8082.4580	B	200	16.78	18.30	1-1	3s 4°-3p 1
7173.9389	B	(10)	16.78	18.50	1-2	(6) -3p 3
7024.0508	B	(9)	16.78	18.53	1-1	-3p 4
6929.4678	B	(10)	16.78	18.56	1-2	-3p 5
6678.2764	A	(9)	16.78	18.62	1-2	-3p 8
6598.9529	A	(15)	16.78	18.65	1-1	-3p 9
5852.4878	A	(50)	16.78	18.88	1-0	-3p 10
3593.5259	C	(10)	16.78	20.21	1-2	3s 4°-4p 8
3520.4717	C	(20)	16.78	20.28	1-0	(7) -4p 10
9665.426	D	1000	18.30	19.58	1-2	3p 1-4s 1°
9486.680	B	500	18.30	19.60	1-1	(8)-4s 2°
8988.58	D	200	18.30	19.68	1-0	-4s 3°
8865.759	B	500	18.30	19.69	1-1	-4s 4°
5343.284	B	(12)	18.30	20.61	1-0	3p 1-4d 1°
5341.096	B	(20)	18.30	20.61	1-1	(9)-4d 2°
5330.779	B	(12)	18.30	20.62	1-2	-4d 5°
4827.338	B	(10)	18.30	20.86	1-1	3p 1-6s 2° (10)
4710.058	E	(10)	18.30	20.92	1-0	3p 1-5d 1°
4708.854	B	(12)	18.30	20.92	1-1	(11)-5d 2°
4704.395	B	(15)	18.30	20.93	1-2	-5d 5°
4537.751	B	(10)	18.30	21.02	1-2	-5d 9°
8377.6068	B	800	18.48	19.95	3-4	3p 2-3d 3°
8376.41	D	200	18.48	19.95	3-3	(12)-3d 4°
8300.3258	B	600	18.48	19.96	3-3	-3d 8°

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ne I continued						
5784.419	B	(15)	18.48	20.62	3-4	3p 2-4d 3°
5748.299	B	(10)	18.48	20.62	3-3	(13)-4d 8°
5037.7505	B	(10)	18.48	20.93	3-4	3p 2-5d 3° (14)
4788.9258	B	(12)	18.48	21.05	3-2	3p 2-7s 1° (15)
4715.344	B	(15)	18.48	21.09	3-4	3p 2-6d 3°
4712.060	E	(10)	18.48	21.09	3-3	(16)-6d 8°
4540.376	B	(10)	18.48	21.19	3-4	3p 2-7d 3° (17)
8495.3600	B	500	18.50	19.95	2-3	3p 3-3d 4°
8418.4274	B	400	18.50	19.96	2-2	(18)-3d 7°
7943.1802	B	200	18.50	20.05	2-3	-3d 10°
5820.155	B	(10)	18.50	20.62	2-3	3p 3-4d 4°
5804.4488	B	(10)	18.50	20.62	2-2	(19)-4d 7°
5562.769	B	(10)	18.50	20.71	2-3	-4d 10°
*4884.915	B	(10)	18.50	21.02	2-3	3p 3-5d 10° (20)
4752.7313	B	(10)	18.50	21.09	2-3	3p 3-6d 4° (21)
10798.12	F	150	18.53	19.68	1-0	3p 4-4s 3° (22)
8704.15	D	200	18.53	19.95	1-2	3p 4-3d 5°
8681.920	B	500	18.53	19.95	1-1	(23)-3d 6°
8634.6480	B	600	18.53	19.96	1-2	-3d 7°
8136.4060	B	300	18.53	20.05	1-2	-3d 9°
5656.6585	B	(10)	18.53	20.71	1-2	3p 4-4d 9° (24)
4957.0334	B	(10)	18.53	21.02	1-2	3p 4-5d 11° (25)
10844.54	F	200	18.56	19.69	2-1	3p 5-4s 4° (26)
8919.50	D	300	18.56	19.94	2-1	3p 5-3d 2°
8853.867	B	700	18.56	19.95	2-2	(27)-3d 5°
8780.6223	B	1200	18.56	19.96	2-3	-3d 8°
8266.076	B	250	18.56	20.05	2-3	-3d 10°
5974.828	B	(10)	18.56	20.62	2-3	3p 5-4d 8°
5719.2254	B	(10)	18.56	20.71	2-3	(28)-4d 10°
5005.160	B	(10)	18.56	21.02	2-3	3p 5-5d 10° (29)
9226.67	D	200	18.61	19.95	1-2	3p 7-3d 5°
9201.78	D	600	18.61	19.95	1-1	(30)-3d 6°
9148.68	D	600	18.61	19.96	1-2	-3d 7°
8591.2584	B	400	18.61	20.05	1-2	-3d 9°
5873.828	B	(10)	18.61	20.71	1-2	3p 7-4d 9° (31)
4790.218	B	(10)	18.61	21.19	1-2	3p 7-6d 11° (32)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ne I continued						
9373.28	D	300	18.82	19.94	2-1	3p 6-3d 2°
9313.98	D	300	18.62	19.95	2-3	(33)-3d 4°
9300.85	D	600	18.62	19.95	2-2	-3d 5°
9221.59	D	200	18.62	19.96	2-2	-3d 7°
9220.05	D	400	18.62	19.96	2-3	-3d 8°
8654.51	D	400	18.62	20.05	2-2	-3d 9°
8654.3835	B	1500	18.62	20.05	2-3	-3d 10°
8647.05	D	300	18.62	20.05	2-2	-3d 11°
5145.011	E	(10)	18.82	21.02	2-2	3p 8-5d 11°
5144.9376	B	(10)	18.62	21.02	2-3	(34)-5d 10°
•4884.915	B	(10)	18.62	20.57	2-1	3p 8-5s 4° (35)
9425.38	D	500	18.63	19.94	0-1	3p 6-3d 2°
9326.52	D	600	18.63	19.95	0-1	(36)-3d 8°
8679.491	B	500	18.63	20.05	0-1	3p 6-3d 12° (37)
9547.40	D	300	18.65	19.94	1-0	3p 9-3d 1°
9534.17	D	500	18.65	19.94	1-1	(38)-3d 2°
9459.21	D	300	18.85	19.95	1-2	-3d 5°
8783.755	B	1000	18.65	20.05	1-2	-3d 11°
8771.70	D	400	16.65	20.05	1-1	-3d 12°
5965.474	B	(10)	18.65	20.71	1-2	3p 9-4d 11° (39)
10562.43	F	200	18.86	20.05	0-1	3p 10-3d 12° (40)

For changes in Paschen's notation see text § 37

Ne II I P 40.91 Anal A List A June 1944

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3694.22	A	10	27.05	30.39	2½-2½	$3s^4P-3p^4P°$
3734.94	A	7	27.12	30.42	1½-1½	(1)
3751.26	A	5	27.15	30.44	½- ½	
3664.09	A	9	27.05	30.42	2½-1½	
3709.64	A	7	27.12	30.44	1½- ½	
3766.29	A	6	27.12	30.39	1½-2½	
3777.16	A	8	27.15	30.42	½-1½	
3334.87	A	10	27.05	30.75	2½-3½	$3s^4P-3p^4D°$
3355.05	A	7	27.12	30.79	1½-2½	(2)
3360.63	A	5	27.15	30.83	½-1½	
3297.74	A	7	27.05	30.79	2½-2½	
3327.16	A	5	27.12	30.83	1½-1½	
3344.43	A	5	27.15	30.84	½- ½	
3270.79	A	2	27.05	30.83	2½-1½	
3311.30	A	3	27.12	30.84	1½- ½	
3135.82	A	1	27.05	30.99	2½-2½	$3s^4P-3p^2D°$
3167.60	A	2	27.12	30.99	1½-2½	(3)
3001.65	A	8	27.12	31.33	1½-1½	$3s^4P-3p^4S°$ †
3028.84	A	4	27.15	31.23	½-1½	(4)
3713.09	A	10	27.66	30.33	1½-2½	$3s^2P-3p^2D°$
3727.08	A	9	27.74	31.05	½-1½	(5)
3643.89	A	5	27.66	31.05	1½-1½	
3481.96	A	8	27.86	31.21	1½- ½	$3s^2P-3p^2S°$
3557.84	A	4	27.74	31.21	½- ½	(8)
3323.75	A	7	27.68	31.38	1½-1½	$3s^2P-3p^2P°$
3378.28	A	5	27.74	31.39	½- ½	(7)
3309.78	A	3	27.66	31.39	1½- ½	
3392.78	A	5	27.74	31.38	½-1½	
3034.48	A	5	30.39	34.46	2½-3½	$3p^4P°-3d^4D$
3047.57	A	8	30.42	34.47	1½-2½	(8)
3054.89	A	5	30.44	34.48	½-1½	
3027.04	A	4	30.39	34.47	2½-2½	
3037.73	A	4	30.42	34.48	1½-1½	
3045.58	A	4	30.44	34.50	½- ½	
3017.34	A	3	30.39	34.48	2½-1½	
3568.53	A	8	30.42	33.88	2½-3½	$3s'\ ^2D-3p'\ ^2F°$
3574.64	A	5	30.42	33.87	1½-2½	(9)
3574.23	A	0	30.42	33.87	2½-2½	
3345.49	A	3	30.42	34.11	2½-1½	$3s'\ ^2D-3p'\ ^2P°$
3319.75	A	3	30.42	34.14	1½- ½	(10)
•3345.88	A	1	30.42	34.11	1½-1½	
3230.18	A	5	30.42	34.24	2½-2½	$3s'\ ^2D-3p'\ ^2D°$
3232.38	A	3	30.42	34.24	1½-1½	(11)
3231.97	A	0	30.42	34.24	2½-1½	
3329.20	A	4	30.75	34.48	3½-3½	$3p^4D°-3d^4D$
3357.90	A	3	30.79	34.47	2½-2½	(12)
3374.10	A	3	30.83	34.48	1½-1½	
3379.39	A	1	30.84	34.50	½- ½	
3320.29	A	2	30.75	34.47	3½-2½	
•3345.88	A	1	30.79	34.48	2½-1½	
3362.89	A	2	30.83	34.50	1½- ½	
3387.05	P		30.79	34.48	2½-3½	
3386.24	A	2	30.83	34.47	1½-2½	
3390.56	A	2	30.84	34.48	½-1½	
3218.21	A	8	30.75	34.59	3½-4½	$3p^4D°-3d^4F$
3198.82	A	5	30.79	34.65	2½-3½	(13)
3190.88	A	2	30.83	34.69	1½-2½	
3213.70	A	3	30.84	34.68	½-1½	
3164.46	A	3	30.75	34.65	3½-3½	
3165.70	A	4	30.79	34.69	2½-2½	
3198.88	P		30.83	34.68	1½-1½	
3132.22	A	2	30.75	34.69	2½-2½	
3173.58	A	3	30.79	34.68	2½-1½	
3208.99	A	2	30.75	34.60	3½-3½	$3p^4D°-3d^2F$
3188.74	A	3	30.79	34.66	2½-2½	(14)
3154.82	A	1	30.75	34.66	3½-2½	
3244.15	A	5	30.79	34.60	2½-3½	
3214.38	A	5	30.63	34.66	1½-2½	
3243.34	A	2	30.79	34.60	2½-2½	$3p^4D°-3d^2D$
3248.15	A	3dr	30.83	34.62	1½-1½	(15)
3269.86	A	3	30.83	34.80	1½-2½	
3263.43	A	3	30.84	34.62	½-1½	
3118.02	A	4	30.75	34.71	3½-2½	$3p^4D°-3d^4P$
3169.30	A	0	30.79	34.69	2½-1½	(16)
3151.16	A	2	30.79	34.71	2½-2½	
3194.61	A	4	30.83	34.69	1½-1½	
3178.16	A	3	30.63	34.71	1½-2½	
3209.38	A	3	30.84	34.89	½-1½	
3039.65	A	3	30.75	34.61	3½-2½	$3p^4D°-4s^4P$
3035.96	A	3	30.79	34.86	2½-1½	(17)
3030.85	A	2	30.83	34.90	1½- ½	
3071.08	A	2	30.79	34.61	2½-2½	
3059.16	A	3	30.63	34.66	1½-1½	
3044.16	A	2	30.84	34.90	½- ½	
•3072.68	A	1d	30.84	34.66	½-1½	
3554.39	A	1	30.99	34.46	2½-3½	$3p^2D°-3d^4D$
						(16)
3367.20	A	6	30.99	34.65	2½-3½	$3p^2D°-3d^4F$
3388.46	A	6	31.05	34.69	1½-2½	(19)
3330.78	A	2	30.99	34.89	2½-2½	
3417.71	A	5	30.99	34.60	2½-3½	$3p^2D°-3d^2F$
3414.62	A	2	31.05	34.88	1½-2½	(20)
3356.35	A	2	30.99	34.66	2½-2½	
3416.87	A	4	30.99	34.60	2½-2½	$3p^2D°-3d^2D$
3453.10	A	3	31.05	34.62	1½-1½	(21)
3477.89	A	3	31.05	34.60	1½-2½	
3314.60	A	1	30.99	34.71	2½-2½	$3p^2D°-3d^4P$
3371.87	A	4	31.05	34.71	1½-2½	(22)
3255.39	A	2	30.99	34.76	2½-1½	$3p^2D°-3d^2P$
3353.63	A	2	31.05	34.73	1½- ½	(23)
3310.55	A	1	31.05	34.78	1½-1½	
3094.08	A	4	30.99	34.98	2½-1½	$3p^2D°-4s^2P$
3088.23	A	3	31.05	35.05	1½- ½	(24)
3143.74	A	2	31.05	34.98	1½-1½	
3551.52	A	1	31.21	34.68	½-1½	$3p^2S°-3d^4F$
						(25)
3612.35	A	3	31.21	34.62	½-1½	$3p^2S°-3d^2D$
						(26)
3546.22	A	1	31.21	34.89	½-1½	$3p^2S°-3d^4P$
						(27)
3456.68	A	4dr*	31.21	34.76	½-1½	$3p^2S°-3d^2P$
3503.81	A	5	31.21	34.73	½- ½	(28)
3275.20	A	2	31.21	34.96	½-1½	$3p^2S°-4s^2P$
						(29)
3608.30	A	2	31.23	34.47	1½-2½	$3p^4S°-3d^4D$
3790.96	A	1	31.23	34.48	1½-1½	(30)
3561.23	A	4	31.23	34.89	1½-2½	$3p^4S°-3d^4F$
3571.26	A	4	31.23	34.68	1½-1½	(31)
3590.47	A	2	31.23	34.66	1½-2½	$3p^4S°-3d^2F$
						(32)
3659.93	A	3	31.23	34.60	1½-2½	$3p^4S°-3d^2D$
3832.75	A	2	31.23	34.82	1½-1½	(33)
3542.90	A	7	31.23	34.71	1½-2½	$3p^4S°-3d^4P$
3585.64	A	4	31.23	34.69	1½-1½	(34)
3594.18	A	4	31.23	34.88	1½- ½	
3475.25	A	1	31.23	34.78	1½-1½	$3p^4S°-3d^2P$
3522.72	A	1	31.23	34.73	1½- ½	(35)
3442.12	A	1	31.23	34.61	1½-2½	$3p^4S°-4s^4P$
3397.90	A	1	31.23	34.86	1½-1½	(36)
3721.88	A	2	31.38	34.69	1½-2½	$3p^2P°-3d^4F$
						(37)
3753.83	A	5	31.38	34.66	1½-2½	$3p^2P°-3d^2F$
						(38)
3829.77	A	7	31.38	34.60	1½-2½	$3p^2P°-3d^2D$
3818.44	A	8	31.39	34.82	½-1½	(39)
3800.02	A	5	31.38	34.82	1½-1½	
3701.81	A	4	31.38	34.71	1½-2½	$3p^2P°-3d^4P$
3744.66	A	4	31.39	34.89	½-1½	(40)
3828.06	A	4	31.36	34.76	1½-1½	$3p^2P°-3d^2P$
3697.09	A	2	31.39	34.73	½- ½	(41)
3679.80	A	2	31.38	34.73	1½- ½	
3644.88	A	4	31.39	34.78	½-1½	
3428.76	A	5	31.38	34.98	1½-1½	$3p^2P°-4s^2P$
3377.23	A	2	31.39	35.05	½- ½	(42)
3443.70	A	2	31.39	34.98	½-1½	
3229.50	A	3	33.88	37.70	3½-4½	$3p'\ ^2F°-3d'\ ^2G$
3234.82	A	4	33.87	37.70	2½-3½	(43)
3097.15	A	3	33.88	37.88	3½-2½	$3p'\ ^2F°-3d'\ ^2D$
3092.91	A	2	33.87	37.86	2½-2½	(44)
3411.38	A	1	34.11	37.72	1½-1½	$3p'\ ^2P°-3d'\ ^2P$
3440.80	A	1	34.14	37.72	½- ½	(45)
3413.13	A	3	34.11	37.72	1½- ½	
3438.97	A	2	34.14	37.72	½-1½	
3336.12	A	2	34.11	37.81	1½-1½	$3p'\ ^2P°-3d'\ ^2F$
						(46)
3141.35	A	3	34.11	38.04	1½-2½	$3p'\ ^2P°-3d'\ ^2F$
						(47)
3050.57	A	1	34.11	38.15	1½- ½	$3p'\ ^2P°-3d'\ ^2F$
•3072.68	A	1d	34.14	38.15	½- ½	(48)
3480.75	A	2	34.18	37.70	½-1½	$sp^4(^1S)3s\ ^3S-$
3479.53	A	1	34.16	37.70	½- ½	$sp^4(^1S)3p\ ^3P°$
						(49)
3542.28	A	2	34.24	37.72	2½-1½	$3p'\ ^2P°-3d'\ ^2F$
3537.99	A	3	34.24	37.72	1½- ½	(50)
3539.94	A	½	34.24	37.72	1½-1½	
3408.68	A	5	34.24	37.86	2½-2½	$3p'\ ^2P°-3d'\ ^2F$
3457.16	P	4dr*	34.24	37.81	1½-1½	(51)
3459.38	A	2	34.24	37.81	2½-1½	
3404.77	A	4	34.24	37.86	1½-2½	
4219.78	A	6	34.46	37.38	3½-3½	$3d^4D-4f^4D°$
4231.60	A	4	34.47	37.39	2½-2½	(52)
4239.95	A	2	34.48	37.39	1½-1½	
4242.20	A	1	34.50	37.40	½- ½	
4217.15	A	3	34.46	37.39	3½-2½	
4220.92	A	2	34.47	37.39	2½-1½	
4224.57	A	1	34.48	37.40	1½- ½	
4250.68	A	4	34.48	37.39	1½-2½	
4257.82	A	3	34.50	37.39	½-1½	
4206.43	A	2	34.46	37.39	3½-4½	$3d^4D-4f^4F°$
4080.48	A	2d	34.48	37.51	1½-2½	(53)
4150.67	A	3	34.50	37.47	½-1½	
4098.77	A	4	34.46	37.47	3½-3½	
4062.90	A	3	34.47	37.51	2½-2½	
4133.65	A	3	34.48	37.47	1½-1½	
4116.10	A	0	34.48	37.48	1½-2½	$3d^4D-4f^4G°$
4100.30	A	1d	34.47	37.48	2½-2½	(54)
4086.69	A	1	34.46	37.48	3½-2½	
4412.54	A	2	34.59	37.36	4½-3½	$3d^4F-4f^4D°$
4514.60	A	2	34.85	37.39	3½-2½	(55)
4535.47	A	3	34.68	37.40	1½- ½	
4517.79	A	2	34.65	37.38	3½-3½	
4553.16	A	4	34.68	37.39	1½-1½	
4565.49	A	1	34.68	37.39	1½-2½	
4397.94	A	8	34.59	37.39	4½-4½	$3d^4F-4f^4F°$
4379.50	A	6	34.65	37.47	3½-3½	(56)
4385.00	A	2	34.89	37.51	2½-2½	
4430.90	A	4	34.68	37.47	1½-1½	
4446.46	A	3	34.69	37.47	2½-1½	
4502.52	A	½	34.85	37.39	3½-4½	
4442.67	A	3	34.69	37.47	2½-3½	
4369.77	A	5	34.66	37.51	1½-2½	
4290.40	A	8	34.59	37.48	4½-5½	$3d^4F-4f^4G°$
4391.94	A	7	34.85	37.48	3½-4½	(57)
4409.30	A	7	34.69	37.49	2½-3½	
•4413.20	A	4	34.86	37.48	1½-2½	
•4428.54	A	8	34.89	37.48	2½-2½	
4385.72	A	2	34.65	37.48	3½-2½	
4534.66	A	2	34.66	37.39	2½-2½	$3d^2F-4f^4D°$
						(58)
4341.42	A	2	34.86	37.51	2½-2½	$3d^2F-4f^4F°$
						(59)
4384.06	A	1	34.66	37.48	2½-2½	$3d^2F-4f^4G°$
						(60)
4468.91	A	5	34.62	37.39	1½-2½	$3d^2D-4f^4D°$
•4436.54	A	6	34.60	37.39	2½-2½	(61)
4456.95	A	5	34.62	37.39	1½-1½	
4416.77	A	2	34.60	37.39	2½-1½	
4439.95	A	2	34.82	37.40	1½- ½	
4244.17	A	0	34.60	37.51	2½-2½	$3d^2D-4f^4F°$
4339.78	A	1	34.82	37.47	1½-1½	(62)
4322.66	A	1	34.62	37.48	1½-2½	$3d^2D-4f^4G°$
						(63)
•4815.98	A	4	34.71	37.38	2½-3½	$3d^4P-4f^4D°$
4574.49	A	1	34.89	37.39	1½-2½	(64)
4812.89	A	1	34.71	37.39	2½-2½	
4562.05	A	1	34.89	37.39	1½-1½	
4498.94	A	5	34.66	37.40	½- ½	
4800.11	A	1	34.71	37.39	2½-1½	
4544.11	A	1	34.89	37.40	1½- ½	
4471.52	A	3	34.71	37.47	2½-3½	$3d^4P-4f^4F°$
4377.95	A	2	34.69	37.51	1½-2½	(65)
•4413.20	A	4	34.71	37.51	2½-2½	
4439.30	A	3	34.89	37.47	1½-1½	
4475.22	A	1	34.71	37.47	2½-1½	
4421.38	A	3	34.69	37.48	1½-2½	$3d^4P-4f^4G°$
						(66)
4732.53	A	1	34.78	37.39	1½-2½	$3d^2P-4f^4D°$
4834.73	A	2	34.73	37.39	½-1½	(87)
4719.37	A	1½	34.78	37.39	1½-1½	
•4815.98	A	4	34.73	37.40	½- ½	
4700.1	A	0	34.76	37.40	1½- ½	
4522.66	A	4	34.76	37.51	1½-2½	$3d^2P-4f^4F°$
4506.21	A	3	34.73	37.47	½-1½	(88)
4586.13	A	3	34.78	37.47	1½-1½	
4589.01	A	5	34.76	37.48	1½-2½	$3d^2P-4f^4G°$
						(89)
4511.37	A	4	34.76	37.51	1½-2½	$3d^2P-4f^2D°$
4511.29	A	2	34.73	37.46	½-1½	(70)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Na II continued						
4795.82	A	2	34.81	37.39	2½-2½	$4s^4P-4f^4F^o$
4869.8	A	0	34.86	37.39	1½-1½	(71)
4922.3	A	0	34.90	37.40	½- ½	
4781.95	A	1	34.81	37.39	2½-1½	
4849.4	A	0	34.86	37.40	1½- ½	
4580.35	A	3	34.81	37.51	2½-2½	$4s^4P-4f^4F^o$
4730.24	A	½	34.86	37.47	1½-1½	(72)
4847.34	A	½	34.81	37.47	2½-1½	
4710.04	A	2	34.86	37.48	1½-2½	$4s^4P-4f^4G^o$
4627.85	A	3	34.81	37.48	2½-3½	(73)
4432.26	A	1	37.70	40.49	1½-2½	$sp^4(^1S)3p^2P^o$
4431.67	A	1	37.70	40.49	½-1½	$-sp^4(^1S)3d^2D$
4429.60	A	2	37.70	40.49	1½-2½	(74)

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Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5889.953//	A	(10R)D_2	0.00	2.10	½-1½	$3^2S-3^2P^o$
5895.923	A	(9R)D_1	0.00	2.09	½- ½	(1)
3302.34	B	(8R)	0.00	3.74	½-1½	$3^2S-4^2P^o$
3302.94	B	(8R)	0.00	3.74	½- ½	(2)
11403.55	C	10	2.10	3.18	1½- ½	$3^2P^o-4^2S$
11381.21	C	8	2.09	3.18	½- ½	(3)
8194.824	D	(10R)	2.10	3.60	1½-2½	$3^2P^o-3^2D$
8183.256	D	(8R)	2.09	3.60	½-1½	(4)
8194.791	D	(-)	2.10	3.60	1½-1½	
6160.747	D	(8r)	2.10	4.10	1½- ½	$3^2P^o-5^2S$
6154.225	D	(8r)	2.09	4.10	½- ½	(5)
5688.205	D	(10)	2.10	4.27	1½-2½	$3^2P^o-4^2D$
5682.633	D	(8)	2.09	4.27	½-1½	(6)
5688.193	D	(-)	2.10	4.27	1½-1½	
5675.3	P	(3s)Forb	2.10	4.27	1½-	$3^2P^o-4^2F^o$
5669.8	P	(3s)Forb	2.09	4.27	½-	(7)
5153.402	D	(6n)	2.10	4.49	1½- ½	$3^2P^o-6^2S$
5148.838	D	(5n)	2.09	4.49	½- ½	(8)
4982.813	D	(6r)	2.10	4.57	1½-2½	$3^2P^o-5^2D$
4978.541	D	(5r)	2.09	4.57	½-1½	(9)
4977.6	P	(1s)Forb	2.10	4.57	1½-	$3^2P^o-5^2F^o$
4973.4	P	(1s)Forb	2.09	4.57	½-	(10)
4751.822	D	(4n)	2.10	4.69	1½- ½	$3^2P^o-7^2S$
4747.941	D	(3n)	2.09	4.69	½- ½	(11)
4668.560	D	(4r)	2.10	4.74	1½-2½	$3^2P^o-6^2D$
4664.811	D	(3r)	2.09	4.74	½-1½	(12)
4665.8	P	(-)Forb	2.10	4.74	1½-	$3^2P^o-6^2F^o$
4662.0	P	(-)Forb	2.09	4.74	½-	(13)
4545.218	B	(4n)	2.10	4.81	1½- ½	$3^2P^o-8^2S$
4541.871	B	(3n)	2.09	4.81	½- ½	(14)
4497.657	D	(2n)	2.10	4.84	1½-2½	$3^2P^o-7^2D$
4494.180	D	(2n)	2.09	4.84	½-1½	(15)
4433.31	B	(4n)	2.10	4.89	1½- ½	$3^2P^o-9^2S$
4419.94	B	(3)	2.09	4.89	½- ½	(16)
4393.45	B	-	2.10	4.90	1½-	$3^2P^o-8^2D$
4390.14	B	-	2.09	4.90	½-1½	(17)
10745.9	E	4	3.18	4.33	½-1½	$4^2S-5^2P^o$
10748.7	E	2	3.18	4.33	½- ½	(18)
8649.6	F	-	3.18	4.60	½-	$4^2S-6^2P^o$ (19)
7809.4	F	-	3.18	4.76	½-	$4^2S-7^2P^o$ (20)
12679.0	F	-	3.60	4.57	—	$3^2D-5^2F^o$ (21)
10834.4	F	-	3.60	4.74	—	$3^2D-6^2F^o$ (22)
9961.0	F	-	3.80	4.84	—	$3^2D-7^2F^o$ (23)
9466.0	P	-	3.60	4.91	—	$3^2D-8^2F^o$ (24)
9154.7	F	-	3.60	4.95	—	$3^2D-9^2F^o$ (25)
8943.6	F	-	3.60	4.98	—	$3^2D-10^2F^o$ (26)
8796	F	-	3.60	5.00	—	$3^2D-11^2F^o$ (27)

Na II I P 47.10 Anal A List D June 1944

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3533.043	A	10	32.71	36.20	2-1	3s 1°-3p 1
3092.729	A	10	32.71	36.70	2-3	(1) -3p 2
3056.157	A	6	32.71	36.74	2-2	-3p 3
3007.442	A	4	32.71	36.81	2-1	-3p 4
3631.266	A	8	32.80	36.20	1-1	3s 2°-3p 1
3129.388	A	6	32.80	36.74	1-2	(2) -3p 3
*3078.315	A	6	32.80	36.81	1-1	-3p 4
*2984.183	A	7	32.80	36.94	1-2	-3p 5
Na II continued						
3711.074	A	6	32.87	36.20	0-1	3s 3°-3p 1
3135.483	A	5	32.87	36.81	0-1	(3) -3p 4
4087.60	A	0	33.18	36.20	1-1	3s 4°-3p 1
3462.494	A	3	33.18	36.74	1-2	(4) -3p 3
3400.110	A	2	33.18	36.81	1-1	-3p 4
3285.603	A	8	33.18	36.94	1-2	-3p 5
3212.186	A	6	33.18	37.02	1-1	-3p 7
3189.783	A	6	33.18	37.05	1-2	-3p 8
3149.267	A	5	33.18	37.10	1-1	-3p 9
3015.400	A	8	36.74	40.84	2-2	3p 3-$3d^3P^o$ (5)
3064.372	A	4	36.81	40.84	1-2	3p 4-$3d^3P^o$ (6)
3179.055	A	5	38.94	40.82	2-1	3p 5-$3d^3P^o$
3183.731	A	6	36.94	40.84	2-2	(7)
*3078.315	A	6	36.94	40.94	2-2	3p 5-$3d^3F^o$ (8)
3074.334	A	6	36.94	40.95	2-3	3p 5-$3d^1F^o$ (9)
3234.928	A	4	37.02	40.84	1-2	3p 7-$3d^3P^o$ (10)
3045.593	A	5	37.02	41.07	1-0	3p 7-$4s^3P^o$ (11)
3007.071	A	5	37.02	41.08	1-2	3p 7-$3d^1D^o$ (12)
3009.138	A	4	37.02	41.12	1-1	3p 7-$4s^1P^o$ (13)
3274.220	A	5	37.05	40.82	2-1	3p 8-$3d^3P^o$
3257.965	A	6	37.05	40.84	2-2	(14)
3053.664	A	6	37.05	41.09	2-3	3p 8-$3d^3D^o$ (15)
3327.685	A	4	37.10	40.81	1-0	3p 9-$3d^3P^o$
3318.032	A	4	37.10	40.82	1-1	(16)
3225.976	A	4	37.10	40.92	1-2	3p 9-$4s^3P^o$
3104.398	A	4	37.10	41.07	1-0	(17)
3066.538	A	4	37.10	41.12	1-1	3p 9-$4s^1P^o$ (18)
4123.069	A	3	38.13	41.12	0-1	3p 10-$4s^1P^o$ (19)
4114.95	B	3	38.13	41.13	0-1	3p 10-$3d^3D^o$ (20)

For changes in Paschen notation see text § 37

Mg I I P 7.61 Anal A List B July 1944

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4571.0956	A	5	0.00	2.70	0-1	$3^1S-3^3P^o$ (1)
5183.6042	A	125	2.70	5.09	2-1	$3^3P^o-4^3S$
5172.6843	A	80	2.70	5.09	1-1	(2)
5167.3216	A	40	2.70	5.09	0-1	
3838.2918	A	100r*	2.70	5.92	2-3	$3^3P^o-3^3D$
3832.3037	A	80r*	2.70	5.92	1-2	(3)
3829.3549	A	40	2.70	5.92	0-1	
3838.2943	A	100r*	2.70	5.92	2-2	
3832.2996	A	80r*	2.70	5.92	1-1	
3336.69	B	20	2.70	6.40	2-1	$3^3P^o-5^3S$
3332.17	B	15	2.70	6.40	1-1	(4)
3329.93	B	10	2.70	6.40	0-1	
3096.902	B	50	2.70	6.69	2-	$3^3P^o-4^3D$
3092.997	B	40	2.70	6.69	1-	(5)
3091.076	B	20	2.70	6.69	0-	
11828.8	B	(120)	4.33	5.37	1-0	$3^1P^o-4^1S$ (6)
8806.7678	A	(10)	4.33	5.73	1-2	$3^1P^o-3^1D$
8806.7358	A	(2)				(7)
8806.7032	A	(2)				
5711.0912	A	(6)	4.33	6.49	1-0	$3^1P^o-5^1S$
5711.0831	A	(1)				(8)
5711.0735	A	(1)				
5528.4094	A	(10)	4.33	6.56	1-2	$3^1P^o-4^1D$
5528.3986	A	(2)				(9)
5528.3876	A	(2)				
4730.0285	A	(2)	4.33	6.94	1-0	$3^1P^o-6^1S$ (10)
4702.9909	A)	40	4.33	6.95	1-2	$3^1P^o-5^1D$
4702.9831	A)					(11)
4702.9758	A)					
4380.38	B	(5)	4.33	7.14	1-2	$3^1P^o-3p^2\ ^3P$ (12)
4354.540	B	(1)	4.33	7.16	1-0	$3^1P^o-7^1S$ (13)
4351.9056	A)	30	4.33	7.16	1-2	$3^1P^o-6^1D$
4351.8941	A)					(14)
4167.2712	A)	10n	4.33	7.29	1-2	$3^1P^o-7^1D$
4167.2604	A)					(15)
4057.5052	A	5n	4.33	7.37	1-2	$3^1P^o-8^1D$ (16)
Mg I continued						
3986.7533	A	(1)	4.33	7.42	1-2	$3^1P^o-9^1D$ (17)
3938.400	A	(0)	4.33	7.46	1-2	$3^1P^o-10^1D$ (18)
3904.02	E	(2r)	4.33	7.49	1-2	$3^1P^o-11^1D$ (19)
3878.58	B	(1)	4.33	7.51	1-2	$3^1P^o-12^1D$ (20)
3859.24	B	(1)	4.33	7.52	1-2	$3^1P^o-13^1D$ (21)
7657.60	B	(35)	5.09	6.70	1-2	$4^3S-5^3P^o$ (22)
6318.23	B)	(5)	(5.09	7.04	1-2	$4^3S-6^3P^o$
6318.75	B)		5.09	7.04	1-	(23)
5785.08	B	(3)	5.09	7.22	1-2	$4^3S-7^3P^o$ (24)
8923.8	D	20	5.37	6.75	0-1	$4^1S-5^1P^o$ (25)
12083.79	P	(50)	5.73	6.75	2-3	$3^1D-4^1F^o$ (26)
9256.0	D	200Nl	5.73	7.06	2-3	$3^1D-5^1F^o$ (27)
8213.02	P	(-)	5.73	7.23	2-3	$3^1D-6^1F^o$ (28)
7691.57	P	(-)	5.73	7.33	2-3	$3^1D-7^1F^o$ (29)
7387.70	P	(-)	5.73	7.40	2-3	$3^1D-8^1F^o$ (30)
7193.20	P	(-)	5.73	7.44	2-3	$3^1D-9^1F^o$ (31)
7060.43	P		5.73	7.48	2-3	$3^1D-10^1F^o$ (32)
6965.42	P		5.73	7.50	2-3	$3^1D-11^1F^o$ (33)
6894.92	P		5.73	7.52	2-3	$3^1D-12^1F^o$ (34)
10966.1	P	(20)	5.91	7.03	2-	$4^3P^o-5^3D$
10961.2	P	(10)	5.91	7.03	1,0-	(35)
9993.7	D	3nl	5.91	7.14	2-1	$4^3P^o-7^3S$
9987.0	D	2n	5.91	7.14	1,0-1	(36)
10812.8	D	(30)	5.92	7.06	—	$3^3D-5^3F^o$ (37)
9415.5	D	10nl	5.92	7.23	—	$3^3D-6^3F^o$
8736.0	D	1n	5.92	7.33	—	(38) $3^3D-7^3F^o$
8346.13	P		5.92	7.40	—	(39) $3^3D-8^3F^o$ (40)
8098.72	P		5.92	7.44	—	$3^3D-9^3F^o$ (41)
7930.83	P		5.92	7.48	—	$3^3D-10^3F^o$ (42)
7811.14	P		5.92	7.50	—	$3^3D-11^3F^o$ (43)
7722.60	P		5.92	7.52	—	$3^3D-12^3F^o$ (44)
3627.63	B	(4)	6.56	9.96	2-3	$4^1D-3p3d^1F^o$ (45)
4099.77	B	(2)	6.95	9.96	2-3	$5^1D-3p3d^1F^o$ (46)
3895.662	B	(10)	7.14	10.31	2-3	$3p^2\ ^3P-3p3d^3D^o$
3891.976	B	(5)	7.14	10.31	1-2	(47)
3890.241	B	(3)	7.14	10.31	0-1	
3898.120	B	(4)	7.14	10.31	2-2	
3893.376	B	(3)	7.14	10.31	1-1	
4409.84	B	(1)	7.16	9.96	2-3	$6^1D-3p3d^1F^o$ (48)

Fine Structure

Mg II I P 14.97 Anal A List A June 1944

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
9217.4	P		8.62	9.96	½-1½	$4^2S-4^2P^o$
9243.4	P		8.62	9.95	½- ½	(1)
3613.80	A	4	8.62	12.03	½-1½	$4^2S-5^2P^o$
3615.64	A	3	8.62	12.03	½- ½	(2)
10914.2	P		8.83	9.96	2½-1½	$3^2D-4^2P^o$
10949.4	P		8.83	9.95	1½- ½	(3)
4481.327	A)	100	(8.83	11.58	2½-	$3^2D-4^2F^o$
4481.129	A)		8.83	11.58	1½-2½	(4)
3848.24	A	7	8.83	12.03	2½-1½	$3^2D-5^2P^o$
3850.40	A	6	8.83	12.03	1½- ½	(5)
3104.805	A)	30	(8.83	12.80	2½-	$3^2D-5^2F^o$
3104.713	A)		8.83	12.80	1½-2½	(6)
8238.4	P		9.96	11.45	1½- ½	$4^2P^o-5^2S$
8217.8	P		9.95	11.45	½- ½	(7)
7896.37	A	-	9.96	11.52	1½-	$4^2P^o-4^2D$
7877.13	A	-	9.95	11.52	½-1½	(8)
4433.991	A	8	9.96	12.74	1½- ½	$4^2P^o-6^2S$
4427.995	A	7	9.95	12.74	½- ½	(9)

I A	Laboratory Ref	Int	E P Low	High	J	Multiplet (No)
Mg II continued						
4390.585	A	10	9.96	12.77	1½- ½	$4^2P^o-5^2D$
4384.643	A	8	9.95	12.77	½-1½	(10)
3553.51	A	5	9.96	13.43	1½- ½	$4^2P^o-7^2S$
3549.61	A	4	9.95	13.43	½- ½	(11)
3538.86	A	6	9.96	13.44	1½- ½	$4^2P^o-6^2D$
3535.04	A	5	9.95	13.44	½-1½	(12)
3175.84	A	2	9.96	13.84	1½- ½	$4^2P^o-8^2S$
3172.79	A	1	9.95	13.84	½- ½	(13)
3168.98	A	3	9.96	13.85	1½-	$4^2P^o-7^2D$
3165.94	A	2	9.95	13.85	½-1½	(14)
9633.0	P		11.52	13.80	—	$4^2D-5^2F^o$ (15)
6346.67	A	5	11.52	13.46	—	$4^2D-6^2F^o$ (16)
5264.14	A	5	11.52	13.86	—	$4^2D-7^2F^o$ (17)
4739.59	A	5	11.52	14.12	—	$4^2D-8^2F^o$ (18)
4436.48	A	5	11.52	14.30	—	$4^2D-9^2F^o$ (19)
4242.47	A	4	11.52	14.43	—	$4^2D-10^2F^o$ (20)
4109.54	A	3	11.52	14.52	—	$4^2D-11^2F^o$ (21)
4013.80	A	2	11.52	14.59	—	$4^2D-12^2F^o$ (22)
6545.80	A	5	11.58	13.47	—	$4^2F^o-6^2G$ (23)
5401.05	A	5	11.58	13.86	—	$4^2F^o-7^2G$ (24)
4851.10	A	5	11.58	14.12	—	$4^2F^o-8^2G$ (25)
4534.26	A	4	11.58	14.30	—	$4^2F^o-9^2G$ (26)
4331.93	A	3	11.58	14.43	—	$4^2F^o-10^2G$ (27)
4193.44	A	2	11.58	14.52	—	$4^2F^o-11^2G$ (28)
4093.90	A	1	11.58	14.59	—	$4^2F^o-12^2G$ (29)

Al I I P 5.96 Anal A List B July 1944

I A	Ref	Int	E P Low	High	J	Multiplet (No)
3961.523//	A	10R	0.01	3.13	1½- ½	$3^3P^o-4^2S$
3944.009	A	10R	0.00	3.13	½- ½	(1)
3443.651	B	10	0.01	3.60	1½-2½	$3^3P^o-3p^2\ ^4P$
3439.352	B	8	0.00	3.59	½-1½	(2)
3452.670	B	5	0.01	3.59	1½-1½	
3444.871	B	7	0.00	3.58	½- ½	
3458.230	B	8	0.01	3.58	1½- ½	
3092.716	C	10R	0.01	4.00	1½-2½	$3^3P^o-3^3D$
3082.159	C	10R	0.00	4.00	½-1½	(3)
3092.843	C	6R	0.01	4.00	1½-1½	
13123.37	P	(400)	3.13	4.07	½-1½	$4^2S-4^2P^o$
13150.68	P	(200)	3.13	4.07	½- ½	(4)
6695.97	D	7	3.13	4.97	½-1½	$4^2S-5^2P^o$
6698.63	D	6	3.13	4.97	½- ½	(5)
5557.08	C	1n	3.13	5.35	½-1½	$4^2S-6^2P^o$
5557.95	C	1n	3.13	5.35	½- ½	(6)
3057.155	B	10	3.60	7.63	2½-2½	$3p^2\ ^4P-4s'\ ^4P^o$†
3059.047	B	4	3.59	7.62	1½-1½	(7)
3066.158	B	5	3.60	7.62	2½-1½	
3064.302	B	5	3.59	7.62	1½- ½	
3050.073	B	9	3.59	7.63	1½-2½	
3054.694	B	6	3.58	7.62	½-1½	
11255.69	P	(300)	(4.00	5.10	2½-	$3^2D-4^2F^o$
11253.81	P)		4.00	5.10	1½-	(8)
8773.91	D	20	4.00	5.41	2½-	$3^2D-5^2F^o$
8772.88	D	15	4.00	5.41	1½-2½	(9)
7836.15	D	10	4.00	5.58	2½-	$3^2D-6^2F^o$
7835.33	D	9	4.00	5.58	1½-2½	(10)
7362.31	D	10	4.00	5.68	2½-	$3^2D-7^2F^o$
7361.59	D	6	4.00	5.68	1½-2½	(11)
10891.21	P		4.07	5.20	1½- ½	$4^2P^o-6^2S$
10872.47	P		4.07	5.20	½- ½	(12)
10782.12	P		4.07	5.21	1½-2½	$4^2P^o-5^2D$
10768.39	P		4.07	5.21	½-1½	(13)
10786.78	P		4.07	5.21	1½-1½	
8923.56	D	2	4.07	5.45	1½-2½	$4^2P^o-6^2D$
8912.88	D	1	4.07	5.45	½-1½	(14)
8841.26	D	3	4.07	5.47	1½-2½	$4^2P^o-7^2S$
8828.91	D	1	4.07	5.47	½-1½	(15)
8075.37	D	4	4.07	5.60	1½-2½	$4^2P^o-7^2D$
8065.99	D	3	4.07	5.60	½-1½	(16)
3479.78	B	6	4.81	8.35	2½-2½	$4^2D-3d'\ ^2D^o$
3482.58	B	5 1	4.81	8.35	1½-1½	(17)
3479.27	B	1	4.81	8.35	1½-2½	

Al I continued

I A	Ref	Int	E P Low	High	J	Multiplet (No)
3931.97	B	5	5.21	8.35	2½-2½	$5^2D-3d'\ ^2D^o$
3935.77	B	4	5.21	8.35	1½-1½	(18)
3087.02	B	5	5.45	9.45	2½-1½	$6^2D-4d'\ ^2P^o$†
						(19)
3203.39	B	4	5.60	9.45	2½-1½	$7^2D-4d'\ ^2P^o$
						(20)

Al II I P 18.75 Anal A List A July 1944

I A	Ref	Int	E P Low	High	J	Multiplet (No)
3900.680	B	10	7.39	10.55	1-2	$3^1P^o-3^1D$ (1)
4663.054	B	0	10.55	13.20	2-1	$3^1D-4^1P^o$ (2)
7042.06	A	10	11.27	13.02	1-2	$4^3S-4^3P^o$
7056.80	A	5	11.27	13.02	1-1	(3)
7063.64	A	1	11.27	13.01	1-0	
8640.70	A	8	11.77	13.20	0-1	$4^1S-4^1P^o$ (4)
3275.776	B	4	11.77	15.54	0-1	$4^1S-5^1P^o$ (5)
10076.29	A	6	11.80	13.02	3-2	$3^3D-4^3P^o$
10107.19	A	4	11.80	13.02	2-1	(6)
10122.50	A	0.5	11.80	13.01	1-0	
10077.32	A	1	11.80	13.02	2-2	
10077.53	A	0.5)				
10108.01	A	0.5	11.80	13.02	1-1	
10108.37	A	0.2)				
3586.557	A	10	11.80	15.24	3-4	$3^3D-4^3F^o$
3587.068	A	9	11.80	15.24	2-3	(7)
3587.450	A	8	11.80	15.24	1-2	
3586.912	A	4	11.80	15.24	3-3	
3586.936	A	2)				
3587.309	A	2.5	11.80	15.24	2-2	
3587.342	A	3)				
3587.165	A	0.5	11.80	15.24	3-2?	
*3587.195	A	1)				
3586.708	A	1.5Forb	11.80	15.24	2-4	
3586.811	A	0.2Forb	11.80	15.24	1-4	
*3587.195	A	1 Forb	11.80	15.24	1-3	
3313.344	A	3	11.80	15.52	3-2	$3^3D-5^3P^o$
3314.883	A	2	11.80	15.52	2-1	(8)
3315.608	A	1	11.80	15.52	1-0	
3313.470	A	0.5	11.80	15.52	2-2	
3314.981	A	0	11.80	15.52	1-1	
3314.756	A	0.5Forb	11.80	15.52	3-1	
3315.516	A	0.2Forb	11.80	15.52	2-0	
6837.14	A	8	13.02	14.83	2-1	$4^3P^o-5^3S$
6833.48	A	5	13.02	14.83	1-1	(9)
6816.69	A	1	13.01	14.83	0-1	
6243.36	A	10	13.02	15.00	2-3	$4^3P^o-4^3D$
6231.78	A	9	13.02	15.00	1-2	(10)
6226.18	A	8	13.01	15.00	0-1	
3738.003	B	3	13.02	16.32	2-1	$4^3P^o-6^3S$
3733.910	B	2	13.02	16.32	1-1	(11)
3731.950	B	1	13.01	16.32	0-1	
3654.995	A	(8)	13.02	16.40	2-3	$4^3P^o-5^3D$
3651.096	A	5)	13.02	16.40	1-2	(12)
3651.065	A	7 Forb	13.02	16.40	1-3?	
3649.184	A	1.5Forb	13.01	16.40	0-3?	
†3649.232	A	1 Forb	13.01	16.40	0-3?	
3026.776	P)	1.5	13.02	17.10	2-1	$4^3P^o-7^3S$
3026.781	P)					(13)
3024.098	P)	1	13.02	17.10	1-1	
3024.114	P)					
3022.804	P	0.5	13.01	17.10	0-1	
2998.158	P)	2	13.02	17.14	2-	$4^3P^o-6^3D$
2998.163	P)					(14)
2995.530	P)	1.5	13.02	17.14	1-	
2995.546	P)					
2994.259	P	1	13.01	17.14	0-1	
6919.96	B	0.5	13.20	14.98	1-0	$4^1P^o-5^1S$ (15)
5593.23	B	10	13.20	15.41	1-2	$4^1P^o-5^1D$ (16)
3866.160	B	2	13.20	16.39	1-0	$4^1P^o-6^1S$ (17)
3703.217	B	4	13.20	16.53	1-2	$4^1P^o-6^1D$ (18)
3135.875	B	3	13.20	17.13	1-0	$4^1P^o-7^1S$ (19)
3088.523	B	3	13.20	17.19	1-2	$4^1P^o-7^1D$ (20)
7471.41	A	9	13.59	15.24	2-3	$4^1D-4^1F^o$ (21)
6335.74	A	10	13.59	15.54	2-1	$4^1D-5^1P^o$ (22)
4237.57	P		13.59	16.50	2-1	$4^1D-5^1F^o$ (23)
4026.5	B	5	13.59	16.68	2-1	$4^1D-6^1P^o$ (24)
3428.916	B	6	13.59	17.19	2-3	$4^1D-6^1F^o$ (25)
3351.456	B	3	13.59	17.27	2-1	$4^1D-7^1P^o$ (26)
3074.665	B	6	13.59	17.60	2-3	$4^1D-7^1F^o$ (27)
3041.278	B	6	13.59	17.65	2-1	$4^1D-8^1P^o$ (28)

Al II continued

I A	Ref	Int	E P Low	High	J	Multiplet (No)
6696.39	B	0.5	14.83	16.67	1-2	$5^3S-6^3P^o$
6699.46	B	0	14.83	16.67	1-1	(29)
4998.43	P		14.83	17.29	—	$5^3S-7^3P^o$ (30)
4332.0	B	0.5	14.83	17.67	—	$5^3S-8^3P^o$ (31)
*3983.7	B	0.5	14.83	17.92	—	$5^3S-9^3P^o$ (32)
3774.3	B	0	14.83	18.09	—	$5^3S-10^3P^o$ (33)
5388.48	B	1	14.98	17.27	0-1	$5^1S-7^1P^o$ (34)
4629.7	B	1	14.98	17.65	0-1	$5^1S-8^1P^o$ (35)
4240.75	B	3	14.98	17.89	0-1	$5^1S-9^1P^o$ (36)
4009.58	B	1	14.98	18.06	0-1	$5^1S-10^1P^o$ (37)
3859.33	B	3	14.98	18.18	0-1	$5^1S-11^1P^o$ (38)
3753.10	B	1	14.98	18.27	0-1	$5^1S-12^1P^o$ (39)
8354.35	A	10	15.00	16.47	3-4	$4^3D-5^3F^o$
8359.57	A	9	15.00	16.47	2-3	(40)
8363.52	A	8	15.00	16.47	1-2	
8359.23	A	1	15.00	16.47	3-3	
8363.30	A	1	15.00	16.47	2-2	
5853.62	B	5	15.00	17.11	3-4	$4^3D-6^3F^o$
5861.53	B	4	15.00	17.10	2-3	(41)
5867.81	B	3	15.00	17.10	1-2	
5371.84	B	6	15.00	17.39	3,2-	$4^3D-7^3P^o$ (42)
5085.02	B	4	15.00	17.42	3-4	$4^3D-7^3F^o$
5093.65	B	2	15.00	17.42	2-3	(43)
5100.34	B	1	15.00	17.42	1-2	
4609.7	B	1	15.00	17.67	—	$4^3D-8^3P^o$ (44)
4585.820	B	6	15.00	17.69	3-4	$4^3D-8^3F^o$
4588.194	B	5	15.00	17.69	2-3	(45)
4589.750	B	4	15.00	17.69	1-2	
4588.082	B	0.5	15.00	17.69	3-3	
4589.689	B	1	15.00	17.69	2-2	
4236.827	A	8	15.00	17.92	3-4	$4^3D-9^3F^o$
*4237.509	A	4	15.00	17.92	2-3	(46)
4237.999	A	3	15.00	17.92	1-2	
*4237.509	A	4)	15.00	17.92	3-3	
4237.420	A	1)				
4237.945	A	0.5	15.00	17.92	2-2	
4237.875	A	0	15.00	17.92	3-2	
4236.918	A	0Forb	15.00	17.92	2-4	
4237.545	A	0.5Forb	15.00	17.92	1-3	
3995.860	B	5	15.00	18.09	3-4	$4^3D-10^3F^o$
3996.159	B	4	15.00	18.09	2-3	(47)
3996.381	B	3	15.00	18.09	1-2	
3996.075	B	1	15.00	18.09	3-3	
3996.323	B	0.5	15.00	18.09	2-2	
3996.182	B	0.5Forb	15.00	18.09	1-3	
*3983.7	B	0.5	15.00	18.09	—	$4^3D-10^3P^o$ (48)
3842.037	B	3	15.00	18.21	3-4	$4^3D-11^3F^o$
3842.213	B	2	15.00	18.21	2-3	(49)
3842.317	B	1	15.00	18.21	1-2	
3734.567	B	1	15.00	18.30	3-4	$4^3D-12^3F^o$
3734.715	B	0.5	15.00	18.30	2-3	(50)
3734.805	B	0	15.00	18.30	1-2	
3656.319	B	0.5	15.00	18.37	3-4	$4^3D-13^3F^o$ (51)
3597.50	B	2	15.00	18.43	3-4	$4^3D-14^3F^o$ (52)
3552.00	B	1	15.00	18.47	3-	$4^3D-15^3F^o$ (53)
3516.05	B	0.5	15.00	18.51	3-	$4^3D-16^3F^o$ (54)
3463.63	B	0	15.00	18.56	3-	$4^3D-18^3F^o$ (55)
9331.546	A	3)	15.24	16.56	3-	$4^1F^o-5^1G$
9331.979	A	2)				(56)
6201.52	A	10)	15.24	17.23	3-	$4^1F^o-6^1G$
6201.70	A	9)				(57)
5158.187	B	1d	15.24	17.63	3-	$4^1F^o-7^1G$ (58)
4650.544	B	2	15.24	17.90	4-	$4^1F^o-8^1G$
4650.646	B	1.5)				(59)
4356.711	B	2	15.24	18.07	3-	$4^1F^o-9^1G$
4356.807	B	1.5)				(60)
4168.434	B	1	15.24	18.20	3-4	$4^1F^o-10^1G$
4168.511	B	0.5)				(61)
4039.397	B	0	15.24	18.30	3-4	$4^1F^o-11^1G$
4039.302	B	0.5)				(62)
3946.406	B	0.5d	15.24	18.37	3-	$4^1F^o-12^1G$ (63)
9290.649	A	6)	15.24	16.56	4-	$4^3F^o-5^3G$
9290.747	A	5)				(64)
9288.145	A	3)	15.24	16.56	3-	
9288.550	A	2)				
9286.578	A	1)	15.24	16.56	2-	
9286.794	A	2)				
6495.45	B	0.5	15.24	17.14	4-	$4^3F^o-6^3D$ (65)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Al II continued						
8183.43	A	10n	15.24	17.23	4-	$4^3F^o-6^3G$ (88)
6182.28	A	8	15.24	17.23	3-	
6182.45	A	7				
6181.57	A	5	15.24	17.23	2-	
6181.68	A	8				
5277.68	B	2	15.24	17.57	4-	$4^3F^o-7^3D$ (87)
5278.81	B	2	15.24	17.57	3-	
5276.42	B	2	15.24	17.57	2-	
5145.654	B	1.5d	15.24	17.63	4-	$4^3F^o-7^3G$ (68)
5144.998	B	1	15.24	17.63	3-	
5144.875	B	0.5				
5144.413	B	0.5d	15.24	17.83	2-	
4640.362	B	4	15.24	17.90	4-	$4^3F^o-8^3G$ (89)
4640.384	B	3.5				
4639.725	B	2	15.24	17.90	3-	
4639.833	B	1.5				
4639.384	B	1	15.24	17.90	2-	
4639.328	B	0.5				
4347.785	B	4	15.24	18.07	4-	$4^3F^o-9^3G$ (70)
4347.802	B	3.5				
4347.223	B	2.0	15.24	18.07	3-	
4347.316	B	1.5				
4346.918	B	1.0	15.24	18.07	2-	
4346.868	B	0.5				
4160.263	B	3	15.24	18.20	4-	$4^3F^o-10^3G$ (71)
4160.239	B	2.5				
4159.725	B	1.5	15.24	18.20	3-	
4159.809	B	1				
4159.450	B	1	15.24	18.20	2-	
4159.407	B	0.5				
4031.633	B	0.5d	15.24	18.30	4-	$4^3F^o-11^3G$ (72)
4031.210	B	0	15.24	18.30	3-	
4031.135	B	0.5				
4030.867	B	0n	15.24	18.30	2-	
3939.068	B	0.5d	15.24	18.37	4-	$4^3F^o-12^3G$ (73)
3938.621	B	0.5d	15.24	18.37	3-	
3870.057	B	0.5	15.24	18.43	4-	$4^3F^o-13^3G$ (74)
6917.93	A	1	15.41	17.19	2-3	$5^1D-8^1F^o$ (75)
8609.64	A	0.5	15.41	17.27	2-1	$5^1D-7^1P^o$ (76)
5613.19	B	3	15.41	17.60	2-3	$5^1D-7^1F^o$ (77)
5502.88	B	3	15.41	17.65	2-1	$5^1D-8^1P^o$ (78)
5000.97	B	3	15.41	17.87	2-3	$5^1D-8^1F^o$ (79)
4962.10	B	3	15.41	17.89	2-1	$5^1D-9^1P^o$ (80)
4653.0	B	0.5	15.41	18.08	2-3	$5^1D-9^1F^o$ (81)
4648.82	B	1	15.41	18.06	2-1	$5^1D-10^1P^o$ (82)
4447.8	B	3	15.41	18.18	2-1	$5^1D-11^1P^o$ (83)
4432.82	B	0.5	15.41	18.19	2-3	$5^1D-10^1F^o$ (84)
4307.20	B	3	15.41	18.27	2-1	$5^1D-12^1P^o$ (85)
4282.97	B	0.5	15.41	18.29	2-3	$5^1D-11^1F^o$ (86)
4202.4 ?	B	2	15.41	18.34	2-1	$5^1D-13^1P^o$ (87)
4056.8	B	0.5	15.41	18.45	2-1	$5^1D-15^1P^o$ (88)
4005.7	B	0	15.41	18.49	2-1	$5^1D-16^1P^o$ (89)
7823.72	A	2	15.52	17.10	2-1	$5^3P^o-7^3S$ (90)
7815.83	A	1	15.52	17.10	1-1	
7812.31	A	0.5	15.52	17.10	0-1	
7635.33	A	2	15.52	17.14	2-	$5^3P^o-8^3D$ (91)
7827.85	A	1	15.52	17.14	1-	
7624.48	A	0.5	15.52	17.14	0-1	
6073.23	A	10	15.52	17.55	2-1	$5^3P^o-8^3S$ (92)
8068.46	A	(8)	15.52	17.55	1-1	
6068.32	A	3	15.52	17.55	0-1	
8066.44	A	2				
8006.42	A	10	15.52	17.57	2-	$5^3P^o-7^3D$ (93)
6001.81	A	(8)	15.52	17.57	1-	
5999.70	A	3	15.52	17.57	0-1	
5999.83	A	2				
5318.07	B	7	15.52	17.84	2-1	$5^3P^o-9^3S$ (94)
5312.32	B	5	15.52	17.84	1-1	
5310.76	B	2	15.52	17.84	0-1	
5283.77	B	8	15.52	17.86	2-	$5^3P^o-6^3D$ (95)
5280.21	B	8	15.52	17.86	1-	
5278.82	B	3	15.52	17.86	0-1	
4902.77	B	5	15.52	18.04	2-1	$5^3P^o-10^3S$ (96)
4699.84	B	3	15.52	18.04	1-1	
4898.52	B	2	15.52	18.04	0-1	
4635.7	B	1	15.52	18.18	2-	$5^3P^o-10^3D$ (97)
4633.2	B	0.5	15.52	18.18	1-	
4831.5	B	0.5	15.52	18.18	0-1	
7449.42	A	5	15.54	17.19	1-2	$5^1P^o-7^1D$ (98)
6061.11	A	8	15.54	17.57	1-0	$5^1P^o-8^1S$ (99)
5971.94	A	7	15.54	17.60	1-2	$5^1P^o-8^1D$ (100)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Al II continued						
5324.61	B	4	15.54	17.86	1-0	$5^1P^o-9^1S$ (101)
5285.85	B	6	15.54	17.87	1-2	$5^1P^o-9^1D$ (102)
4918.98	B	3	15.54	18.05	1-0	$5^1P^o-10^1S$ (103)
4898.76	B	5	15.54	18.08	1-2	$5^1P^o-10^1D$ (104)
4666.8	B	11	15.54	18.18	1-0	$5^1P^o-11^1S$ (105)
4655.05	B	0.5	15.54	18.19	1-2	$5^1P^o-11^1D$ (106)
4489.87	B	0.5	15.54	18.29	1-2	$5^1P^o-12^1D$ (107)
9124.27	A	0.5	16.32	17.67	1-2	$6^3S-8^3P^o$ (108)
6001.18	B	1	16.39	18.45	0-1	$6^1S-15^1P^o$ (109)
8119.72	A	1.5	16.40	17.92	-4	$5^3D-9^3F^o$ (110)
8122.08	A	0.5	16.40	17.92	-3	
8121.89	A	0.2				
8123.52	A	0	16.40	17.92	-2	
6775.97	B	0.5	18.40	18.22	-	$5^3D-11^3P^o$ (111)
8680.31	A	3	16.47	17.90	4-	$5^3P^o-8^3G$ (112)
8674.92	A	2	16.47	17.90	3-	
8875.28	A	1				
8671.06	A	0.5	16.47	17.90	2-	
8671.28	A	1				
7709.78	A	0	16.47	18.07	4-	$5^3F^o-9^3G$ (113)
7138.81	B	0.5	16.47	18.20	4-	$5^3F^o-10^3G$ (114)
7134.66	B	0.5	16.47	18.20	3-	
7131.29	B	0	16.47	18.20	2-	
8858.39	A	1	16.50	17.90	3-	$5^1F^o-8^1G$ (115)
8858.77	A	0.5				
8086.91	A	0.5	16.53	18.08	2-3	$6^1D-9^1F^o$ (116)
9249.41	A	1	16.56	17.90	—	$5^1G-8^1H^o$ (117)
8160.15	A	3	16.56	18.08	—	$5^1G-9^1H^o$ (118)
7526.2	A	0.2	16.56	18.20	—	$5^1G-10^1H^o$ (119)
Fine Structure						
Al III	I P 28.33		Anal A		List A	July 1944
3601.623	A	(20)	14.31	17.74	2½-1½	$3^2D-4^2P^o$ (1)
3612.352	A	(15)	14.31	17.73	1½-½	
3601.916	A	1	14.31	17.74	1½-1½	
5698.47	A	8	15.57	17.74	½-1½	$4^2S-4^2P^o$ (2)
5722.65	A	6	15.57	17.73	½-½	
4529.178	A	(10)	17.74	20.47	1½-2½	$4^2P^o-4^2D$ (3)
4512.535	A	(8)	17.73	20.47	½-1½	
4528.911	A	1	17.74	20.47	1½-1½	
3713.103	A	(15)	17.74	21.07	1½-½	$4^2P^o-5^2S$ (4)
3702.086	A	(10)	17.73	21.07	½-½	
4149.897	A	(10)	20.47	23.44	2½-3½	$4^2D-5^2F^o$ (5)
4150.138	A	(8)	20.47	23.44	1½-2½	
4149.917	A	1	20.47	23.44	2½-2½	
4701.65	A	8	20.69	23.32	—	$4^2F^o-5^2D$ (6)
4490.90	A	2nn Forb	20.69	23.44	—	$4^2F^o-5^2F^o$ (7)
4479.968	A	4	20.69	23.45	3½-	$4^2F^o-5^2G$ (8)
4479.891	A	3	20.69	23.45	2½-3½	
4364.59	A	2n	22.03	24.86	1½-	$5^2P^o-6^2D$ (9)
4357.24	P		22.03	24.88	½-1½	
3287.37	A	1	22.03	25.79	1½-	$5^2P^o-7^2D$ (10)
3283.11	A	0 5	22.03	25.79	½-1½	
4903.71	A	4	23.32	25.83	—	$5^2D-7^2F^o$ (11)
3980.58	A	2n	23.32	26.42	—	$5^2D-8^2F^o$ (12)
5260.91	A	0n	23.44	25.79	—	$5^2F^o-7^2D$ (13)
5150.86	A	6n	23.44	25.84	—	$5^2F^o-7^2G$ (14)
4188.88	A	0.5	23.44	26.39	—	$5^2F^o-8^2D$ (15)
4142.15	A	2n	23.44	26.42	—	$5^2F^o-8^2G$ (16)
4141.25	A	0n Forb	23.44	26.42	—	$5^2F^o-8^2H^o$ (17)
5172.8	A	1	23.45	25.83		$5^2G-7^2F^o$ (18)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Al III continued						
5163.90	A	7	23.45	25.84		$5^2G-7^2H^o$ (19)
3658.3	A	(1n)	23.45	26.82		$5^2G-9^2H^o$ (20)
Si I	I P 8.11		Anal B		List A	Aug 1944
2970.35	A	15	0.78	4.93	2-2	$3p^2\ ^1D-4s^3P^o$ (1)
2987.65	A	25	0.78	4.91	2-1	
4102.926	A	25	1.90	4.91	0-1	$3p^2\ ^1S-4s^3P^o$ (2)
3905.527	A	100	1.90	5.06	0-1	$3p^2\ ^1S-4s^1P^o$ (3)
12031.49	A	25	4.93	5.96	2-3	$4s^3P^o-4p^3D$ (4)
11984.20	A	20	4.91	5.94	1-2	
11991.57	A	10	4.90	5.93	0-1	
12270.50	A	2	4.93	5.94	2-2	
12103.46	A	5	4.91	5.93	1-1	
12395.97	P		4.93	5.93	2-1	
10827.09	A	100	4.93	8.07	2-2	$4s^3P^o-4p^3P$ (5)
10749.40	A	60	4.91	6.06	1-1	
10979.27	A	35	4.93	6.06	2-1	
10786.86	A	50	4.91	6.05	1-0	
10603.38	A	60	4.91	6.07	1-2	
10660.98	A	50	4.90	6.06	0-1	
10585.12	A	100	4.93	6.10	2-1	$4s^3P^o-4p^3S$ (6)
10371.23	A	50	4.91	6.10	1-1	
10288.83	A	25	4.90	6.10	0-1	
9768.27	A	5w	4.93	6.20	2-2	$4s^3P^o-4p^1D$ (7)
9585.72	A	4	4.91	6.20	1-2	
8435.28	P		4.91	6.37	1-0	$4s^3P^o-4p^1S$ (8)
5797.912	A	40	4.93	7.06	2-3	$4s^3P^o-5p^3D$ (9)
5793.128	A	30	4.91	7.04	1-2	
5780.452	A	25	4.90	7.03	0-1	
5859.23	P		4.93	7.04	2-2	
5708.437	A	75	4.93	7.09	2-2	$4s^3P^o-5p^3P$ (10)
5690.470	A	40	4.91	7.08	1-1	
5754.258	A	8w	4.93	7.08	2-1	
5701.138	A	25	4.91	7.07	1-0	
5645.665	A	25	4.91	7.09	1-2	
5665.601	A	25	4.90	7.08	0-1	
5684.523	A	50	4.93	7.10	2-1	$4s^3P^o-5p^3S$ (11)
5622.23	A	3	4.91	7.10	1-1	
11890.44	P		5.06	6.10	1-1	$4s^1P^o-4p^3S$ (12)
10869.54	A	125	5.06	6.20	1-2	$4s^1P^o-4p^1D$ (13)
9413.59	A	200	5.06	6.37	1-0	$4s^1P^o-4p^1S$ (14)
6067.62	P		5.06	7.09	1-2	$4s^1P^o-5p^3P$ (15)
5948.584	A	100	5.06	7.14	1-2	$4s^1P^o-5p^1D$ (16)
5772.258	A	50	5.06	7.20	1-0	$4s^1P^o-5p^1S$ (17)
8417.89	P		5.59	7.06	3-3	$3d^3D^o-5p^3D$ (18)
8527.32	P		5.59	7.04	2-2	
8397.96	P		5.59	7.06	2-3	
8514.64	P		5.59	7.04	1-2	
8230.67	A	15	5.59	7.09	3-2	$3d^3D^o-5p^3P$ (19)
8306.80	A	4w	5.59	7.08	2-1	
8317.45	A	2w	5.59	7.07	1-0	
8211.48	A	2	5.59	7.09	2-2	
8150.57	P		5.59	7.10	1-1	$3d^3D^o-5p^3S$ (20)
7995.00	P		5.59	7.14	2-2	$3d^3D^o-5p^1D$ (21)
7416.00	A	250	5.59	7.26	2-3	$3d^3D^o-4f^1F$ (22)
7423.54	A	500	5.59	7.26	3-4	$3d^3D^o-4f^3F$ (23)
7409.11	A	100	5.59	7.26	2-3	
7405.85	A	300	5.59	7.26	1-2	
7424.63	A	20	5.59	7.26	3-3	
7415.37	A	15	5.59	7.26	2-2	
7289.25	A	250	5.59	7.29	3-4	$3d^3D^o-4f^3G$ (24)
7275.28	A	50	5.59	7.29	2-3	
7290.21	A	10	5.59	7.29	3-3	
7250.69	A	40	5.59	7.30	3-3	$3d^3D^o-4f^3D$ (25)
7193.56	A	8	5.59	7.31	2-2	
7184.89	A	10	5.59	7.31	1-1	
7208.20	A	1	5.59	7.31	3-2	
7193.89	A	5	5.59	7.31	2-1	
7235.86	A	10	5.59	7.30	2-3	
7184.54	A	1	5.59	7.31	1-2	
7235.32	A	15	5.59	7.30	2-2	$3d^3D^o-4f^1D$ (26)
7226.20	A	20	5.59	7.30	1-2	
6244.56	A	10n	5.59	7.57	2-2	$3d^3D^o-5f^1D$ (27)
6237.62	A	5n	5.59	7.57	1-2	
6254.25	A	25n	5.59	7.57	3-4	$3d^3D^o-5f^3F$ (28)
6243.86	A	10n	5.59	7.57	2-3	
6237.34	A	5n	5.59	7.57	1-2	
6254.96	A	2n	5.59	7.57	3-3	
6244.13	P		5.59	7.57	2-2	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
S1 I continued						
6155.22	A	20n	5.59	7.60	3-4	$3d^3D^o-5f^3G$
6145.08	A	10n	5.59	7.60	3-3	(29)
6155.73	A	2n	5.59	7.60	3-3	
6142.53	A	5n	5.59	7.60	3-3	$3d^3D^o-5f^3D$
6131.54	A	4n	5.59	7.60	2-2	(30)
6124.85	A	2n	5.59	7.60	1-1	
6131.86	A	5n	5.59	7.60	2-3	
6125.03	A	4n	5.59	7.60	1-2	
6142.21	P		5.59	7.60	3-2	
6131.30	P		5.59	7.60	2-1	
10844.02	A	25w	5.84	6.98	1-2	$4p^1P-4d^1D^o$
						(31)
10627.81	A	20w	5.84	7.00	1-2	$4p^1P-4d^3P^o$
						(32)
8179.43	P		5.84	7.35	1-2	$4p^1P-6s^3P^o$
8338.43	A	5w	5.84	7.32	1-1	(33)
8093.32	A	25w	5.84	7.36	1-1	$4p^1P-6s^1P^o$
						(34)
7913.47	A	10w	5.84	7.40	1-2	$4p^1P-5d^3P^o$
						(35)
7680.35	A	100w	5.84	7.44	1-2	$4p^1P-5d^1D^o$
						(36)
6848.65	A	4w	5.84	7.64	1-1	$4p^1P-7s^1P^o$
						(37)
6722.67	A	2w	5.84	7.67	1-2	$4p^1P-6d^1D^o$
						(38)
11018.00	A	70	5.85	6.97	2-1?	$3d^1D^o-5p^1P$
						(39)
10153.13	P		5.85	7.06	2-3	$3d^1D^o-5p^3D$
						(40)
10020.16	A	1	5.85	7.08	2-1	$3d^1D^o-5p^3P$
						(41)
•9570.08	A	4	5.85	7.14	2-2	$3d^1D^o-5p^1D$
						(42)
8752.17	A	200	5.85	7.26	2-3	$3d^1D^o-4f^1F$
						(43)
8742.60	A	100	5.85	7.26	2-3	$3d^1D^o-4f^3F$
8751.18	P		5.85	7.26	2-2	(44)
8556.64	A	100w	5.85	7.29	2-3	$3d^1D^o-4f^3G$
						(45)
8502.38	A	30w	5.85	7.30	2-3	$3d^1D^o-4f^3D$
8444.00	A	15w	5.85	7.31	2-2	(46)
8444.48	A	3w	5.85	7.31	2-1	
8501.50	A	20w	5.85	7.30	2-2	$3d^1D^o-4f^1D$
						(47)
7165.62	A	100w	5.85	7.57	2-2	$3d^1D^o-5f^1D$
						(48)
•7164.75	A		5.85	7.57	2-3	$3d^1D^o-5f^3F$
7165.09	P)	2w	(5.85	7.57	2-2	(49)
7034.96	A	50w	5.85	7.60	2-3	$3d^1D^o-5f^3G$
						(50)
7017.98	A	4w	5.85	7.60	2-3	$3d^1D^o-5f^3D$
7017.68	A	10w	5.85	7.60	2-2	(51)
7016.90	P		5.85	7.60	2-1	
6527.20	P		5.85	7.74	2-2	$3d^1D^o-6f^3F$
						(52)
10727.21	A	75w	5.96	7.11	3-4	$4p^3D-4d^3F^o$
10694.14	A	50w	5.94	7.09	2-3	(53)
10689.52	A	20w	5.93	7.08	1-2	
10682.66	A	5w	5.96	7.09	3-3	
10784.33	A	5w	5.94	7.08	2-2	
8892.97	A	25w	5.96	7.35	3-2	$4p^3D-6s^3P^o$
8949.33	A	15w	5.94	7.32	2-1	(54)
8925.55	A	8w	5.93	7.31	1-0	
8766.68	A	3w	5.94	7.35	2-2	
8883.84	A	4w	5.93	7.32	1-1	
8667.40	P		5.94	7.36	2-1	$4p^3D-6s^1P^o$
8606.43	A	1w	5.93	7.36	1-1	(55)
8579.15	A	2w	5.96	7.40	3-2	$4p^3D-5d^3P^o$
						(56)
7943.94	A	500w	5.96	7.51	3-4	$4p^3D-5d^3F^o$
7932.20	A	300w	5.94	7.49	2-3	(57)
7918.38	A	200w	5.93	7.49	1-2	
8035.39	A	7w	5.96	7.49	3-3	
7970.26	A	10w	5.94	7.49	2-2	
7373.02	A	10w	5.96	7.63	3-2	$4p^3D-7s^3P^o$
7285.94	P		5.94	7.63	2-2	(58)
7255.28	P		5.94	7.64	2-1	$4p^3D-7s^1P^o$
						(59)
7005.84	A	50w	5.96	7.72	3-4	$4p^3D-6d^3F^o$
7003.58	A	50w	5.94	7.70	2-3	(60)
6976.53	A	25w	5.93	7.70	1-2	
7084.33	A	2w	5.98	7.70	3-3	
6813.85	P		5.96	7.77	3-3	$4p^3D-7d^3D^o$
6730.38	P		5.93	7.76	1-1	(61)
6842.35	P		5.96	7.76	3-2	
6729.80	P		5.93	7.78	1-2	
6527.49	A	3n	5.96	7.85	3-4	$4p^3D-7d^3F^o$
6555.20	A	2n	5.94	7.82	2-3	(82)
6560.68	A	2n	5.93	7.81	1-2	
10262.49	P		6.06	7.26	1-1	$4p^3P-4d^1P^o$
						(83)
10067.84	A	4w	6.07	7.30	2-3	$4p^3P-5d^3D^o$
10025.80	P		6.06	7.29	1-2	(64)
9967.46	A	1	6.05	7.29	0-1	
10155.88	A	1	8.07	7.29	2-2	
10001.35	P		8.06	7.29	1-1	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
S1 I continued						
9689.41	A	8w	6.07	7.35	2-2	$4p^3P-6s^3P^o$
9789.24	A	2n	6.06	7.32	1-1	(65)
9913.16	A	1w	6.07	7.32	2-1	
9839.58	A	2w	6.06	7.31	1-0	
•9570.08	A	4	6.06	7.35	1-2	
9758.08	A	2n	6.05	7.32	0-1	
9318.24	A	4	6.07	7.40	2-2	$4p^3P-5d^3P^o$
9238.60	A	2n	6.07	7.41	2-1	(66)
•9103.37	A	3w	6.06	7.41	1-0	
9208.55	A	5w	6.06	7.40	1-2	
•9103.37	A	3w	6.05	7.41	0-1	
8070.64	P		6.07	7.60	2-3	$4p^3P-6d^3D^o$
8086.18	P		6.06	7.58	1-2	(67)
7912.55	A	3w	6.07	7.63	2-2	$4p^3P-7s^3P^o$
						(68)
7898.38	P		6.07	7.63	2-2	$4p^3P-6d^3P^o$
						(69)
7105.34	P		6.06	7.79	1-1	$4p^3P-8s^1P^o$
7089.03	P		6.05	7.79	0-1	(70)
9891.90	A	5w	6.10	7.35	1-2	$4p^3S-6s^3P^o$
						(71)
9505.28	A	5	6.10	7.40	1-2	$4p^3S-5d^3P^o$
9421.82	A	4	6.10	7.41	1-1	(72)
9393.40	A	2w	6.10	7.41	1-0	
8046.78	P		6.10	7.63	1-2	$4p^3S-7s^3P^o$
						(73)
8009.39	P		6.10	7.64	1-1	$4p^3S-7s^1P^o$
						(74)
7392.18	P		6.10	7.77	1-2	$4p^3S-8s^3P^o$
7455.47	P		6.10	7.75	1-1	(75)
11468.54	A	1w	6.18	7.26	4-4	$3d^3F^o-4f^3F$
11202.02	A	1w	6.15	7.26	2-2	(76)
11308.45	A	2w	6.16	7.26	3-2	
11290.01	A	10w	6.16	7.26	3-4	
11187.74	A	20w	6.15	7.26	2-3	
11130.37	A	7w	6.18	7.29	4-5	$3d^3F^o-4f^3G$
10982.28	A	7w	6.16	7.29	3-4	(77)
10885.16	A	10w	6.15	7.29	2-3	
10984.24	A	3w	6.16	7.29	3-3	
10893.72	P		6.16	7.30	3-2	$3d^3F^o-4f^1D$
10796.52	A	0n	6.15	7.30	2-2	(78)
•8898.97	A	3w	6.18	7.57	4-4	$3d^3F^o-5f^3F$
•8790.88	A	4w	6.16	7.57	3-3	(79)
8729.02	A	5w	6.15	7.57	2-2	
8899.50	A	3w	6.18	7.57	4-3	
8791.28	A	5w	6.16	7.57	3-2	
•8790.88	A	4w	6.16	7.57	3-4	
8728.38	A	10w	6.15	7.57	2-3	
8596.02	P		6.16	7.60	3-4	$3d^3F^o-5f^3G$
8536.38	A	3w	6.15	7.60	2-3	(80)
8597.00	A	2nl	6.16	7.60	3-3	
7850.5	A	2N	6.16	7.74	3-2	$3d^3F^o-6f^3F$
7800.0	A	4N	6.15	7.74	2-2	(81)
11607.42	A	0w	6.20	7.26	2-1	$4p^1D-4d^1P^o$
						(82)
11485.68	A	2w	6.20	7.27	2-3	$4p^1D-4d^1F^o$
						(83)
10582.66	A	1	8.20	7.36	2-1	$4p^1D-6s^1P^o$
						(84)
9886.92	A	2w	6.20	7.44	2-2	$4p^1D-5d^1D^o$
						(85)
•8898.97	A	3w	6.20	7.58	2-3	$4p^1D-5d^1F^o$
						(86)
8576.46	P		6.20	7.63	2-2	$4p^1D-6d^3P^o$
						(87)
8550.34	P		6.20	7.64	2-1	$4p^1D-7s^1P^o$
						(88)
7431.17	P		6.20	7.86	2-3	$4p^1D-7d^1F^o$
						(89)
11811.49	A	5w	8.23	7.30	2-3	$3d^3P^o-4f^3D$
•11591.98	A	4w	6.24	7.31	1-2	(90)
11640.58	A	2w	6.25	7.31	0-1	
11502.94	A	3w	6.23	7.31	2-2	
•11591.98	A	4w	6.24	7.31	1-1	
•9009.04	A	5nl	6.23	7.60	2-3	$3d^3P^o-5f^3D$
9064.06	A	0wl	6.24	7.60	1-2	(91)
•9009.04	A	5nl	8.23	7.60	2-2	
10015.33	A	1	6.37	7.60	0-1	$4p^1S-7s^3P^o$
						(92)

Strongest Unclassified Lines of S1 I

9770.10	A	4w
9738.60	A	8w
9254.59	A	4n
8848.89	A	100nl
8503.17	A	5
7743.2	A	4n
7742.7	A	5n
6721.97	A	4w
6415.24	A	4w

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
S1 II I P 16.27 Anal B List A Aug 1944						
3856.021	A	8	6.83	10.03	2½-1½	$3p^2\ ^2D-4^2P^o$
3862.592	A	6	6.83	10.02	1½- ½	(1)
3853.657	A	3	6.83	10.03	1½-1½	
6347.091	A	10	8.09	10.03	½-1½	$4^2S-4^2P^o$
6371.359	A	8	8.09	10.02	½- ½	(2)
4130.884	A	10	9.80	12.78	2½-	$3^2D-4^2F^o$
4128.053	A	8	9.79	12.78	1½-2½	(3)
5978.970	A	7	10.03	12.09	1½- ½	$4^2P^o-5^2S$
5957.612	A	5	10.02	12.09	½- ½	(4)
5056.020	A	10	10.03	12.47	1½-2½	$4^2P^o-4^2D$
5041.063	A	8	10.02	12.47	½-1½	(5)
5056.353	A	2	10.03	12.47	1½-1½	
3339.84	A	3	10.03	13.73	1½- ½	$4^2P^o-6^2S$
3333.16	A	2	10.02	13.73	½- ½	(6)
3210.04	A	3	10.03	13.87	1½-	$4^2P^o-5^2D$
3203.89	A	2	10.02	13.87	½-1½	(7)
5868.404	A	3	?	?	2½-2½	$3p4s4p^o-3p4p^4$
5846.12	A	0	?	?	1½-1½	(8)
5827.80	A	0	?	?	½- ½	
5915.266	A	1	?	?	2½-1½	
5867.497	A	1	?	?	1½- ½	
5800.48	A	1	?	?	1½-2½	
5806.75	A	2	?	?	½-1½	
5639.492	A	2	?	?	2½-1½	$3p4s4p^o-3p4p^4$
5576.61	A	1	?	?	1½-1½	(9)
5540.74	A	0	?	?	½-1½	

Strongest Unclassified Lines of S1 II

6671.88	A	3
6660.49	A	2
5785.64	A	1
5706.375	A	1
5701.375	A	1
5688.856	A	2
5669.590	A	4
5496.24	A	1
5468.92	A	2
5456.11	A	2
5438.41	A	1
5294.97	A	1
5202.51	A	3
5192.75	A	1
5185.09	A	1
5181.77	A	1
4921.69	A	1
4906.88	A	1n
4859.28	A	1
4656.80	A	1
4198.174	A	2
4190.738	A	3
4076.78	A	1
4075.45	A	2
3998.00	A	1n
3991.77	A	2n
3199.54	A	1
3193.10	A	1
3188.95	A	1

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
S1 III I P 33.32 Anal B List A Aug 1944						
3086.225	A	7	17.63	21.63	3-2	$3^3D-4^3P^o$
3093.423	A	6	17.63	21.62	2-1	(1)
3096.786	A	4	17.64	21.62	1-0	
3086.429	A	3	17.63	21.63	2-2	
3093.613	A	3	17.64	21.62	1-1	
3086.620	A	1	17.64	21.63	1-2	
4552.654	A	9	18.92	21.63	1-2	$4^3S-4^3P^o$
4567.872	A	7	18.92	21.62	1-1	(2)
4574.777	A	4	18.92	21.62	1-0	
4338.52	A	1	18.94	21.79	0-1	$3p^2\ ^1S-4^1P^o$
						(3)
5739.762	A	8	19.64	21.79	0-1	$4^1S-4^1P^o$
						(4)
3806.56	A	5	21.63	24.88	2-	$4^3P^o-4^3D$
3796.11	A	4	21.62	24.88	1-	(5)
3791.41	A	3	21.62	24.88	0-1	
3241.67	A	8	21.63	25.44	2-1	$4^3P^o-5^3S$
3234.00	A	5	21.62	25.44	1-1	(6)
3230.55	A	3	21.62	25.44	0-1	
3590.46	A	8	21.79	25.22	1-2	$4^1P^o-4^1D$
						(7)
3185.16	A	3	21.79	25.66	1-0	$4^1P^o-5^1S$
						(8)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Si III continued						
4828.923	A	4n	25.86	28.42	4-	$4^3F^o-5^3G$
4819.740	A	3n	25.86	28.42	3-	(9)
4813.290	A	2n	25.85	28.42	2-3	
3040.93	A	1	25.86	29.92	4-	$4^3F^o-6^3G$
3037.26	A	1	25.86	29.92	3-	(10)
3034.74	A	1	25.85	29.92	2-	
3126.25	A	0	26.68	30.62	2-2	$3p3d^3P^o-3p4p^3P$
3147.38	A	0	26.68	30.60	2-1	(11)
3258.67	A	1	26.84	30.82	3-2	$3p3d^3D^o-3p4p^3P$
3276.25	A	1	26.83	30.60	2-1	(12)
3279.25	A	0	26.82	30.59	1-0	
3253.44	A	00	26.83	30.82	2-2	
4683.018	A	2	27.99	30.62	2-2	$3p4s^3P^o-3p4p^3P$
4665.87	A	0	27.95	30.60	1-1	(13)
4682.774	A	2	27.95	30.59	1-0	
4638.12	A	1	27.94	30.60	0-1	
Unclassified Lines of Si III						
4716.658	A	5				
3924.44	A	4				
3486.93	A	6				
3482.70	A	0n				
3210.52	A	3				
3196.50	A	3				
3186.01	A	2				

Si IV I P 44.95 Anal A List A Aug 1944

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4088.883	A	10	23.95	26.97	½-1½	$4^2S-4^2P^o$
4116.104	A	8	23.95	26.95	½- ½	(1)
3165.72	A	8	26.97	30.86	1½-2½	$4^2P^o-4^2D$
3149.58	A	(7)	26.95	30.86	½-1½	(2)
3762.41	A	(5)	30.86	34.14	2½-1½	$4^2D-5^2P^o$
3773.13	A	(4)	30.86	34.13	1½- ½	(3)
4328.22	B	(4)	34.14	37.00	1½- ½	$5^2P^o-6^2S$
4314.18	B	(3)	34.13	37.00	½- ½	(4)
4212.44	A	(4)	35.99	38.92	—	$5^2D-6^2F^o$ (5)
4631.38	A	(5)	36.28	38.92	—	$5^2F^o-6^2G$ (6)
4654.14	A	(8)	36.27	38.93	—	$5^2G-6^2H^o$ (7)

P I I P 10.9 Anal C List B Sept 1944

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
10581.52	A	8	6.98	8.12	2½-3½	$4s^4P-4p^4D^o$
10529.45	A	5	6.92	8.10	1½-2½	(1)
10511.45	A	3	6.91	8.08	½-1½	
10813.03	A	0	6.96	8.10	2½-2½	
10681.43	A	1	8.92	8.08	1½-1½	
10596.92	A	1	6.91	8.07	½- ½	
9796.79	A	50	8.96	8.21	2½-2½	$4s^4P-4p^4P^o$
9734.74	A	20	6.92	8.19	1½-1½	(2)
9608.97	A	3	6.91	8.19	½- ½	
9976.65	A	5	6.96	8.19	2½-1½	
9750.73	A	25	6.92	8.19	1½- ½	
9583.45	A	12	8.92	8.21	1½-2½	
9593.54	A	25	6.91	8.19	½-1½	
9525.78	A	30	8.96	8.25	2½-1½	$4s^4P-4p^4S^o$
9304.88	A	3	8.92	8.25	1½-1½	(3)
9175.85	A	0	8.91	8.25	½-1½	
10084.22	A	25	7.18	8.41	1½-1½	$4s^2P-4p^2P^o$
9903.74	A	8	7.14	8.39	½- ½	(4)
10204.72	A	2	7.18	8.39	1½- ½	
9790.08	A	3	7.14	8.41	½-1½	

P II I P 19.57 Anal B List B Aug 1944

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3715.86	A	4	9.48	13.80	2-3	$3s3p^3\ ^3P^o-4p^3D$
3768.71	A	4	9.48	13.76	1-2	(1)
3795.10	A	3	9.48	13.74	0-1	
3761.82	A	3	9.48	13.78	2-2	
3793.81	A	3	9.48	13.74	1-1	
3788.70	A	2	9.48	13.74	2-1	
3472.88	A	5	9.48	13.03	2-3	$3s3p^3\ ^3P^o-4p^3P$
3503.00	A	5	9.48	13.00	2-1	(2)
3518.81	A	4nd?	9.48	12.99	1-0	
•3478.74	A	3	9.48	13.03	1-2	
3419.25	A	6	9.48	13.09	2-1	$3s3p^3\ ^3P^o-4p^3S$
3424.88	A	6	9.48	13.09	1-1	(3)
3426.20	A	4	9.48	13.09	0-1	
P II continued						
3308.86	A	6w	9.59	13.32	2-2	$3s3p^3\ ^1D^o-4p^1D$ (4)
6043.10	B	(5)	10.76	12.80	2-3	$4s^3P^o-4p^3D$
6024.15	B	(3)	10.71	12.78	1-2	(5)
6034.01	B	(1)	10.69	12.74	0-1	
6165.56	B	(1)	10.78	12.76	2-2	
6087.76	B	(1)	10.71	12.74	1-1	
5425.93	A	7w	10.76	13.03	2-2	$4s^3P^o-4p^3P$
5386.87	A	7w	10.71	13.00	1-1	(8)
5499.72	A	7	10.76	13.00	2-1	
5409.66	A	7w	10.71	12.99	1-0	
5316.07	A	7W	10.71	13.03	1-2	
5344.73	A	7W	10.69	13.00	0-1	
5296.09	A	8W	10.76	13.09	2-1	$4s^3P^o-4p^3S$
5191.41	A	6	10.71	13.09	1-1	(7)
5152.20	A	4	10.69	13.09	0-1	
•?4720.26	A	3	10.71	13.32	1-2	$4s^3P^o-4p^1D$† (8)
4612.84	A	3	10.71	13.38	1-1	$4s^3P^o-4p^1P$
4581.77	A	3n	10.69	13.38	0-1	(9)
5253.49	A	8W	10.97	13.32	1-2	$4s^1P^o-4p^1D$ (10)
4499.18	A	7 l	10.97	13.72	1-0	$4s^1P^o-4p^1S$ (11)
•3551.16	A	3n	12.69	16.17	1-2	$3s3p^3\ ^1P^o-5$
3470.83	A	4	12.89	16.25	1-	(12) -8
•3404.34	A	5	12.69	16.32	1-2	-13
3377.52	A	4n	12.69	16.34	1-2	-18
4943.42	A	7 l	12.80	15.29	3-2	$4p^3D-5s^3P^o$
4969.65	A	7 l	12.76	15.24	2-1	(13)
4954.33	A	5 l	12.74	15.23	1-0	
4864.38	A	4 l	12.76	15.29	2-2	
4927.17	A	4 l	12.74	15.24	1-1	
4823.84	A	0	12.74	15.29	1-2	
4739.49	A	3 l	12.76	15.36	2-1	$4p^3D-5s^1P^o$
4700.80	A	4 l	12.74	15.36	1-1	(14)
4601.97	A	8 Wl?	12.80	15.48	3-4	$4p^3D-4d^3F^o$
•4587.91§	A	8W	12.78	15.45	2-3	(15)
			12.74	15.43	1-2	
4658.12	A	6 l	12.80	15.45	3-3	
4626.61	A	5 l?	12.76	15.43	2-2	
4224.43	A	2	12.80	15.72	3-3	$4p^3D-4d^3D^o$
4072.13	A	3	12.76	15.79	2-2	(16)
4036.23	A	2n	12.74	15.79	1-1	
4127.49	A	5 l?	12.80	15.79	3-2	
4064.64	A	3 l?	12.76	15.79	2-1	
4166.73	A	2n	12.76	15.72	2-3	
4117.09	A	4	12.80	15.80	3-2	$4p^3D-4d^3P^o$
4120.78	A	2 n	12.76	15.75	2-1	(17)
4130.77	A	3 nl?	12.74	15.72	1-0	
4062.08	A	2 n	12.76	15.80	2-2	
4091.53	A	3 ld?	12.74	15.75	1-1	
4033.68	A	2	12.74	15.80	1-2	
3664.20	A	6w	12.79	16.16	2-2	$3d^3P^o-4$
3570.34	A	3d	12.79	16.25	2-2	(18) -9
3507.37	A	6wd?	12.79	16.31	2-	-12
•3478.74	A	3	12.79	16.34	2-1	-17
3775.03	A	3	12.81	16.08	1-2	$3d^3P^o-2$
3676.27	A	6w	12.81	16.17	1-2	(19) -5
3490.45	A	5	12.81	16.34	1-2	-18
3706.06	A	7w	12.83	16.16	1-2?	$3d^3P^o-4$
3536.30	A	3	12.83	16.32	1-2	(20) -14
3559.93	A	3	12.85	16.31	2-	$3d^3P^o-12$
3556.49	A	6	12.85	16.32	2-2	(21) -13
•3551.18	A	3n	12.85	16.32	2-2	-14
3533.67	A	2	12.85	16.34	2-	-16
3530.25	A	5	12.85	16.34	2-1	-17
3527.11	A	3	12.85	16.34	2-2	-18
•3404.34	A	5	12.85	16.47	2-1	-20
•3728.67§§	A	4d	12.85	16.16	3-2	$3d^3P^o-4$
3733.63	A	3	12.85	16.17	3-2	(22) -5
3631.41	A	4	12.85	16.25	3-2?	-9
3566.43	A	5	12.85	16.31	3-	-12
3582.48	A	3	12.85	16.32	3-2	-13
5450.66	A	6 l	13.03	15.29	2-2	$4p^3P-5s^3P^o$
5507.15	A	5 l	13.00	15.24	1-1	(23)
5583.33	A	5 l	13.03	15.24	2-1	
5541.19	A	4	13.00	15.23	1-0	
5378.12	A	3 l	13.00	15.29	1-2	
5483.58	A	5 l	12.99	15.24	0-1	
•4589.79	A	8 W	13.03	15.72	2-3	$4p^3P-4d^3D^o$
4425.95	A	2	13.00	15.79	1-2	(24)
4401.97	A	1 n	12.99	15.79	0-1	
4475.27	A	7 l	13.03	15.79	2-2	
4417.31	A	3	13.00	15.79	1-1	
4466.11	A	3	13.03	15.79	2-1	
4462.95	A	5	13.03	15.80	2-2	$4p^3P-4d^3P^o$
4483.67	A	3	13.00	15.75	1-1	(25)
4533.81	A	2	13.03	15.75	2-1	
•4530.78	A	7 l	13.00	15.72	1-0	
4414.29	A	6	13.00	15.80	1-2	
4467.98	A	4	12.99	15.75	0-1	
P II continued						
3827.46	A	7 l	13.08	16.31	2-2	$3d^1D^o-11$
5588.25	A	5 l	13.09	15.29	1-2	$4p^3S-5s^3P^o$
5727.69	A	2 l	13.09	15.24	1-1	(27)
4554.81	A	6 l?	13.09	15.80	1-2	$4p^3S-4d^3P^o$
4628.71	A	4 l?	13.09	15.75	1-1	(28)
4678.95	A	6 l	13.09	15.72	1-0	
4558.04	A	6 l	13.09	15.79	1-1	$4p^3S-4d^3D^o$ (29)
4244.55	A	3	13.25	16.16	3-2	$3d^1F^o-4$
4109.19	A	5	13.25	16.25	3-	(30) -10
4044.49	A	7w	13.25	16.31	3-2	-11
4019.45	A	4	13.25	16.32	3-3	-15
4452.45	A	6 l	13.38	16.15	1-	$3d^1P^o-3$
4423.9	A	3 d	13.38	16.17	1-1	(31) -6
4160.56	A	3	13.38	16.34	1-2	-18
6460.1	C	3	13.38	15.29	1-2	$4p^1P-5s^3P^o$ (32)
4288.53	A	4	13.38	16.26	1-1	$4p^1P-4d^1P^o$ (33)
3372.70	A	4	13.38	17.04	1-1	$4p^1P-6s^1P^o$ (34)
•4587.91 §	A	8W	13.62	16.31	2-2	1°-11
•4530.78	A	7 l	13.62	16.34	2-	(35) -16
4792.06	A	5 l	13.64	16.21	-2	2°-7
4622.71	A	4 n	13.64	16.31	-2	(36) -11
•4589.79	A	8 W	13.64	16.32	-3	-15
4565.22	A	6 l	13.64	16.34	—	-16
3710.46	A	3n	13.72	17.04	0-1	$4p^1S-6s^1P^o$ (37)

P III I P 30.03 Anal B List A Aug 1944

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4059.27	A	6	14.43	17.47	2½-1½	$3^2D-4^2P^o$
4080.04	A	7	14.43	17.45	1½- ½	(1)
4057.39	A	4	14.43	17.47	1½-1½	
4222.15	A	7w	14.55	17.47	½-1½	$4^2S-4^2P^o$
4246.68	A	7w	14.55	17.45	½- ½	(3)
3233.62	A	6w	17.47	21.29	1½-	$4^2P^o-4^2D$
3219.32	A	6w	17.45	21.29	½-1½	(4)
3277.82	A	3	14.43	18.19	2½-2½	$3^2D-3p^3\ ^2D^o$
3283.22	A	2	14.43	18.19	1½-1½	(2)
5203.86	A	5	21.29	23.66	-1½	$4^2D-5^2P^o$ (5)
3280.22	A	3n	21.29	25.05	—	$4^2D-5^2F^o$ (6)
•4587.91 §	A	8W	22.05	24.74	—	$4^2F^o-5^2D$ (7)
3978.28	A	8W	22.05	25.16	—	$4^2F^o-5^2G$ (8)
3957.64	A	6	?	?	2½-2½	$3p4s^4P^o-3p4p^4P$
3933.38	A	4	?	?	1½-1½	(9)
3922.72	A	4	?	?	½- ½	
3997.17	A	5	?	?	2½-1½	
3951.51	A	5	?	?	1½- ½	
3895.03	A	6	?	?	1½-2½	
3904.79	A	6	?	?	½-1½	
3802.08	A	6	?	?	2½-1½	$3p4s^4P^o-3p4p^4S$
3744.22	A	5	?	?	1½-1½	(10)
•3717.63§§	A	5	?	?	½-1½?	

P IV I P 51.15 Anal B List B Aug 1944

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3347.72	A	6	28.01	31.70	1-2	$4^3S-4^3P^o$
3364.44	A	6	28.01	31.68	1-1	(1)
3371.10	A	5	28.01	31.67	1-0	
4249.57	A	6	28.89	31.79	0-1	$4^1S-4^1P^o$ (2)
•3728.67§§	A	4d	36.20	39.51	2-1	$4^3D-5^3P^o$
•3717.63§	A	5	36.20	39.52	2-2	(3)
3717.03	A	5	36.20	39.52	1-2	

P V I P 64.74 Anal A List A Aug 1944

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3175.16	A	5	33.70	37.58	½-1½	$4^2S-4^2P^o$
3204.06	A	3	33.70	37.55	½- ½	(1)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
S I I P 10.31	Anal B		List B		Sept 1944	
9212.91	B	(10)	6.50	7.84	2-3	$4^5S^o-4^5P$
9228.11	B	(10)	6.50	7.83	2-2	(1)
9237.49	B	(10)	6.50	7.83	2-1	
4694.13	A	10	6.50	9.12	2-3	$4^5S^o-5^5P$
4695.45	A	8	6.50	9.12	2-2	(2)
4696.25	A	6	6.50	9.12	2-1	
10455.47	B	(8)	6.83	8.01	1-2	$4^3S^o-4^3P$
10459.46	B	(8)	6.83	8.01	1-1	(3)
10456.79	B	(4)	6.83	8.01	1-0	
5278.99	A	3	6.83	9.17	1-2	$4^3S^o-5^3P$
5278.70	A	1	6.83	9.17	1-1	(4)
5278.10	A	0	6.83	9.17	1-0	
4411.34	A	3	6.83	9.63	1-	$4^3S^o-6^3P$ (5)
8694.70	A	10	7.84	9.25	3-4	$4^5P-4^5D^o$
8680.47	A	8	7.83	9.25	2-3	(6)
8671.37	A	1	7.83	9.26	1-2	
8693.98	A	3	7.84	9.25	3-3	
8679.70	A	2	7.83	9.26	2-2	
8670.65	A	2	7.83	9.26	1-1	
8693.24	A	1	7.84	9.26	3-2	
8679.00	A	1	7.83	9.26	2-1	
8670.19	A	1	7.83	9.26	1-0	
7696.73	A	10	7.84	9.44	3-2	$4^5P-6^5S^o$
7686.13	A	8	7.83	9.44	2-2	(7)
7679.60	A	5	7.83	9.44	1-2	
6757.16	A	10	7.84	9.66	3-	$4^5P-5^5D^o$
6748.79	A	8	7.83	9.66	2-	(8)
6743.58	A	6	7.83	9.66	1-	
6415.50	A	3	7.84	9.76	3-2	$4^5P-7^5S^o$
6408.13	A	2	7.83	9.76	2-2	(9)
6403.58	A	1	7.83	9.76	1-2	
6052.66	A	10	7.84	9.87	3-	$4^5P-6^5D^o$
6046.04	A	5	7.83	9.87	2-	(10)
6041.93	A	3	7.83	9.87	1-	
5706.11	A	6	7.84	10.00	3-	$4^5P-7^5D^o$
5700.24	A	4	7.83	10.00	2-	(11)
5696.63	A	2	7.83	10.00	1-	
5507.01	A	4	7.84	10.08	3-	$4^5P-8^5D^o$
5501.54	A	3	7.83	10.08	2-	(12)
5498.18	A	2	7.83	10.08	1-	
9035.92	B	(6)	8.01	9.38	2-3	$4^3P-4^3D^o$
9036.32	B	(4)	8.01	9.38	1-2	(13)
9038.72	B	(3)	8.01	9.38	0-1	
9039.27	B	(3)	8.01	9.38	2-2	
9036.73	B	(2)	8.01	9.38	1-1	
8452.14	A	5	8.01	9.47	2-1	$4^3P-6^3S^o$
8449.54	A	3	8.01	9.47	1-1	(14)
8451.55	A	1	8.01	9.47	0-1	
*7244.77	A	4	(8.01 / 8.01	9.71 / 9.71	2-3 / 2-2	$4^3P-5^3D^o$ † (15)
*9949.84	B	(8)	(8.37 / 8.37	9.62 / 9.61	3-2 / 1-0	$3^3D^o-4p'\ ^3P$† (16)
9932.26	B	(8)	8.37	9.62	2-2	
*9633.78	B	(5)	(8.37 / 8.37	9.66 / 9.65	3-4 / 2-3	$3^3D^o-4p'\ ^3F$ (17)
9672.34	B	(10)	8.37	9.65	1-2	
9649.94	B	(12)	8.37	9.65	3-3	
9680.80	B	(10)	8.37	9.65	2-2	
9697.33	B	(8)	8.37	9.65	3-2	
9413.46	B	(8)	8.37	9.69	3-3	$3^3D^o-4p'\ ^3D$†
9421.93	B	(8)	8.37	9.68	2-2	(18)
*9437.11	B	(8)	(8.37 / 8.37	9.68 / 9.68	1-1 / 3-2	
11453	B	(1)	8.38	9.46	4-	$3^5D^o-4^5F$
11472	B)	(1n)	(8.38	9.46	3-	(19)
11464	B)		8.38	9.46	0-	
9693.68	B	(10)	8.38	9.70	3-3	$3^5D^o-4p'\ ^3F$†
9739.74	B	(8)	8.38	9.69	2-2	(20)
9741.93	B	(5)	8.38	9.69	3-2	
8874.53	B	(9)	8.38	9.77	4-	$3^5D^o-5^5F$†
8884.23	B	(7)	8.38	9.77	3-	(21)
8882.47	B	(5)	8.38	9.77	2-	
8880.70	B	(3)	8.38	9.77	1-	
7923.95	A	15	8.38	9.94	4-	$3^5D^o-8^5F$†
7931.70	A	10	8.38	9.94	3-	(22)
7930.33	A	8	8.38	9.94	2-	
7928.84	A	6	8.38	9.94	1-	

Strongest Unclassified Lines of S I

9958.90	B	(8)
8585.60	A	10
7629.82	A	10
7578.96	A	10
4993.51	A	8
3887.56	A	8

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
S II I P 23.3	Anal B		List A		Sept 1944	
5027.19	D	2	13.04	15.49	1½-½	$3s3p^4\ ^2P-4p^2S^o$
5142.33	D	1	13.09	15.49	½-½	(1)
4121.0	A	00	13.04	16.03	1½-1½	$3s3p^4\ ^2P-4p^2P^o$ (2)
3908.95	A	1	13.04	16.20	1½-2½	$3s3p^4\ ^2P-4p^2D^o$ (3)
3595.991	A	4	13.04	16.47	1½-1½	$3s3p^4\ ^2P-4p^2P^o$
3672.14	A	2	13.09	16.45	½-½	(4)
3613.03	A	0	13.04	16.45	1½-½	
3654.51	A	1	13.09	16.47	½-1½	
6388.48	D	2	13.56	15.49	1½-½	$4s^4P-4p^2S^o$ (5)
5453.81	C	15	13.81	15.88	2½-3½	$4s^4P-4p^4D^o$
5432.77	C	12	13.56	15.83	1½-2½	(8)
5428.64	C	9	13.53	15.80	½-1½	
5564.94	C	8	13.61	15.83	2½-2½	
5509.87	C	15	13.58	15.80	1½-1½	
5473.59	C	15	13.53	15.78	½-½	
5645.62	D	4	13.61	15.80	2½-1½	
5556.01	C	5	13.56	15.78	1½-½	
5032.41	C	2	13.61	18.07	2½-2½	$4s^4P-4p^4P^o$
4991.94	C	1	13.58	18.03	1½-1½	(7)
4942.47	C	(1)	13.53	16.02	½-½	
5103.30	C	1	13.81	16.03	2½-1½	
5009.54	C	1	13.56	18.02	1½-½	
4924.08	C	9	13.56	16.07	1½-2½	
4925.32	C	10	13.53	16.03	½-1½	
4779.11	A	2	13.61	16.20	2½-2½	$4s^4P-4p^2D^o$
4804.12	A	00	13.81	18.13	1½-1½	(8)
4681.32	A	00	13.56	16.20	1½-2½	
4742.4	A	00	13.53	18.13	½-1½	
4815.515	A	10	13.61	16.18	2½-1½	$4s^4P-4p^4S^o$
4716.226	A	8	13.56	16.18	1½-1½	(9)
4656.74	A	4	13.53	16.18	½-1½	
4193.51	A	1	13.56	16.45	½-1½	$4s^4P-4p^2P^o$ (10)
5606.11	C	15	13.67	15.88	4½-3½	$3d^4F-4p^4D^o$
5640.32	C	10	13.64	15.83	3½-2½	(11)
5659.95	C	12	13.62	15.80	2½-1½	
5664.73	C	10	13.60	15.78	1½-½	
5526.22	C	6	13.64	15.88	3½-3½	
5578.85	C	7	13.62	15.83	2½-2½	
5616.63	C	5	13.60	15.80	1½-1½	
5466.55	E	(0)	13.62	15.88	2½-3½?	
5536.77	D	1	13.60	15.83	1½-2½	
8314.73	B	10	14.01	15.49	1½-½	$4s^2P-4p^2S^o$
7967.43	B	10	13.94	15.49	½-½	(12)
5996.18	D	4	14.01	18.07	1½-2½	$4s^2P-4p^4P^o$
5908.25	D	2	13.94	16.03	½-1½	(13)
6097.12	D	1	14.01	16.03	1½-1½	
5932.95	D	1	13.94	18.02	½-½	
6123.41	D	1	14.01	16.02	1½-½	
5639.96	C	10	14.01	16.20	1½-2½	$4s^2P-4p^2D^o$
5646.98	C	8	13.94	16.13	½-1½	(14)
5819.22	C	10	14.01	16.13	1½-1½	
5014.03	C	1	14.01	16.47	1½-1½	$4s^2P-4p^2P^o$
4917.15	C	7	13.94	16.45	½-½	(15)
5047.28	C	(0)	14.01	16.45	1½-½	
4885.63	A	2	13.94	16.47	½-1½	
3669.049	A	5	14.01	17.37	1½-2½	$4s^2P-4p'\ ^2D^o$
3594.462	A	3	13.94	17.38	½-1½	(16)
3663.47	A	0	14.01	17.38	1½-1½	
3314.50	A	0	14.01	17.73	1½-1½	$4s^2P-4p'\ ^2P^o$
3272.25	D	3	13.94	17.71	½-½	(17)
3329.3	A	00	14.01	17.71	1½-½	
3257.83	D	2	13.94	17.73	½-1½	
6981.40	D	4	14.11	15.88	3½-3½	$3d^4D-4p^4D^o$
7139.79	B	1	14.10	15.83	2½-2½	(18)
7256.96	B	1	14.10	15.80	1½-1½	
7317.03	B	0	14.09	15.78	½-½	
7164.63	D	2	14.11	15.83	3½-2½	
7273.20	B	1	14.10	15.80	2½-1½	
7337.81	B	0	14.10	15.78	1½-½	
6957.95	D	1	14.10	15.88	2½-3½	
7124.28	D	1	14.10	15.83	1½-2½	
7236.91	B	0	14.09	15.80	½-1½	
6305.51	D	10	14.11	16.07	3½-2½	$3d^4D-4p^4P^o$
6397.30	D	8	14.10	16.03	2½-1½	(19)
6413.71	D	9	14.10	16.02	1½-½	
6286.35	D	8	14.10	16.07	2½-2½	
6384.89	D	8	14.10	16.03	1½-1½	
6398.05	D	8	14.09	16.02	½-½	
6274.34	D	3	14.10	16.07	1½-2½	
6369.34	D	4	14.09	16.03	½-1½	
6092.13	D	2	14.10	16.13	2½-1½	$3d^4D-4p^2D^o$
5895.89	D	0	14.10	16.20	2½-2½	(20)
6080.85	D	1	14.10	16.13	1½-1½	
5951.30	D	3	14.10	16.18	2½-1½	$3d^4D-4p^4S^o$
5940.69	D	1	14.10	16.18	1½-1½	(21)
5927.15	D	1	14.09	16.18	½-1½	
3845.21	A	00	14.10	17.31	2½-2½	$3d^4D-4p'\ ^3F^o$ (22)
3782.6	A	00	14.11	17.37	3½-2½	$3d^4D-4p'\ ^2D^o$ (23)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
S II continued						
7509.03	B	0	14.23	15.88	3½-3½	$3d^2F-4p^4D^o$ (24)
6732.88	D	0	14.23	16.07	3½-2½	$3d^2F-4p^4P^o$
8841.06	D	1	14.17	18.03	2½-1½	(25)
6531.39	D	1	14.17	18.07	2½-2½	
6287.06	D	10	14.23	18.20	3½-2½	$3d^2F-4p^2D^o$
6312.68	D	10	14.17	18.13	2½-1½	(28)
6102.28	D	4	14.17	16.20	2½-2½	
6161.84	D	1	14.17	16.18	2½-1½	$3d^2F-4p^4S^o$ (27)
6314.29	D	1	14.23	18.19	3½-	$3d^2F-Y^o$
6128.31	D	0	14.17	16.19	2½-	(28)
3993.528	A	4	14.23	17.32	3½-3½	$3d^2F-4p'\ ^2I$
3931.938	A	3	14.17	17.31	2½-2½	(29)
4007.78	A	0	14.23	17.31	3½-2½	
3918.19	A	00	14.17	17.32	2½-3½	
3932.30	A	2	14.23	17.37	3½-2½	$3d^2F-4p'\ ^2I$
3853.09	A	2	14.17	17.38	2½-1½	(30)
3859.28	A	0	14.17	17.37	2½-2½	
7821.47	B	0	14.30	15.88	2½-3½	$3d^4P-4p^4D^o$
8086.87	B	0	14.30	15.83	1½-2½	(31)
8273.46	B	0	14.31	15.80	½-1½	
8051.91	B	0	14.30	15.83	2½-2½	
8258.27	B	2	14.30	15.80	1½-1½	
8377.79	B	1	14.31	15.78	½-½	
8221.63	B	0	14.30	15.80	2½-1½	
8381.95	B	1	14.30	15.78	1½-½	
4431.02	A	1	14.59	17.37	1½-2½	$3d^2P-4p'\ ^2D$ (32)
3924.05	A	00	14.59	17.73	1½-1½	$3d^2P-4p'\ ^2P$
3945.06	E	(0)	14.59	17.71	1½-½?	(33)
8520.23	B	1	14.73	16.18	2½-1½	$3d^2D-4p^4S^o$ (34)
4755.12	A	2	14.73	17.32	2½-3½	$3d^2D-4p'\ ^2F$
4763.38	A	1	14.72	17.31	1½-2½	(35)
4668.58	A	3	14.73	17.37	2½-2½	$3d^2D-4p'\ ^2D$
4648.17	A	2	14.72	17.38	1½-1½	(36)
8432.39	B	0	15.00	16.47	2½-1½	$4s'\ ^2D-4p^3P^o$
8515.48	B	0	15.00	16.45	1½-½	(37)
5320.70	C	3	15.00	17.32	2½-3½	$4s'\ ^2D-4p'\ ^2F$
5345.67	C	4	15.00	17.31	1½-2½	(38)
5212.81	C	3	15.00	17.37	2½-2½	$4s'\ ^2D-4p'\ ^2D$
5201.00	C	2	15.00	17.38	1½-1½	(39)
5201.32	E	(2)	15.00	17.38	2½-1½	
4524.946	A	6	15.00	17.73	2½-1½	$4s'\ ^2D-4p'\ ^2P$
*4552.378	A	7	15.00	17.71	1½-½	(40)
4524.68	A	2	15.00	17.73	1½-1½	
3783.16	A	2	15.49	18.75	½-1½	$4p^2S^o-5s^2P$
3860.15	A	2	15.49	18.69	½-½	(41)
3317.70	D	0	15.49	19.21	½-½	$4p^2S^o-4d^2P$ (42)
4463.582	A	7	15.88	18.64	3½-2½	$4p^4D^o-5s^4P$
4483.424	A	6	15.83	18.58	2½-1½	(43)
4486.66	A	3	15.80	18.55	1½-½	
4391.84	A	3	15.83	18.64	2½-2½	
4432.41	A	3	15.80	18.58	1½-1½	
4456.43	A	2	15.78	18.55	½-½	
4342.84	A	00	15.80	18.64	1½-2½	
4402.86	A	0	15.78	18.58	½-1½	
*4162.698	A	10	15.88	18.84	3½-4½	$4p^4D^o-4d^4F$
4153.098	A	10	15.83	18.80	2½-3½	(44)
4145.100	A	9	15.80	18.78	1½-2½	
4142.291	A	8	15.78	18.76	½-1½	
4217.23	A	3	15.88	18.80	3½-3½	
*4189.71	A	6n	15.83	18.78	2½-2½	
4168.409	A	5	15.80	18.76	1½-1½	
4255.01	B	0	15.88	18.78	3½-2½	
4213.5	A	00	15.83	18.76	2½-1½	
4028.791	A	7	15.88	18.94	3½-3½	$4p^4D^o-4d^4D$
3990.94	A	3	15.83	18.92	2½-2½	(45)
3963.13	A	2	15.80	18.91	1½-1½	
3946.98	A	1	15.78	18.91	½-½	
4050.11	A	1	15.88	18.92	3½-2½	
4003.89	A	1	15.83	18.91	2½-1½	
*3970.69	A	1	15.80	18.91	1½-½	
3950.42	A	00	15.80	18.92	1½-2½	
3939.49	A	00	15.78	18.91	½-1½	
4792.02	A	3	18.07	18.64	2½-2½	$4p^4P^o-5s^4P$
4835.85	A	00	18.03	18.58	1½-1½	(46)
4883.73	B	1	16.02	18.55	½-½	
4901.30	C	1	16.07	18.58	2½-1½	
4900.47	C	2	16.03	18.55	1½-½	
4729.45	A	0	16.03	18.84	1½-2½	
*4819.80	A	2n	16.02	18.58	½-1½	
4590.8	A	00	16.07	18.75	2½-1½	$4p^4P^o-5s^2P$
4533.3	A	00	16.03	18.75	1½-1½	(47)
4518.9	A	00	16.02	18.75	½-1½	
*4552.378	A	7	16.07	18.78	2½-2½	$4p^4P^o-4d^4F$
4495.9	A	00	16.03	18.78	1½-2½	(48)
4509.0	A	00	16.02	18.78	½-1½	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
S II continued						
4294.432	A	6	16.07	18.94	2½-3½	$4p^4P^o-4d^4D$
4267.803	A	5	18.03	18.92	1½-2½	(49)
4269.76	A	3	16.02	18.91	½-1½	
4318.68	A	4	16.07	18.92	2½-2½	
4282.63	A	3	16.03	18.91	1½-1½	
4278.54	A	3	16.02	18.91	½- ½	
4333.84	A	0	16.07	18.91	2½-1½	
4291.45	A	1	16.03	18.91	1½- ½	
3892.321	A	5	16.07	19.24	2½-2½	$4p^4P^o-4d^4P$
3792.46	B	5	16.02	19.28	½- ½	(50)
*3860.64 §	A	3	16.07	19.26	2½-1½	
3802.65	A	1	16.03	19.28	1½- ½	
3850.93	A	2	16.03	19.24	1½-2½	
3809.67	A	1	16.02	19.26	½-1½	
3776.80	A	00	16.07	19.33	2½-3½	$4p^4P^o-4d^2F$ (51)
4834.07	A	3	16.20	18.75	2½-1½	$4p^2D^o-5s^2P$
*4819.60	A	2n	16.13	18.69	1½- ½	(52)
4700.21	A	00	16.13	18.75	1½-1½	
4497.88	A	00	16.20	18.94	2½-3½	$4p^2D^o-4d^4D$
4415.37	D	00	16.13	18.92	1½-2½	(53)
4058.7	A	00	16.20	19.24	2½-2½	$4p^2D^o-4d^4P$
*3970.69	A	1	16.13	19.24	1½-2½	(54)
3933.294	A	9	16.20	19.33	2½-3½	$4p^2D^o-4d^2F$
3923.483	A	7	16.13	19.27	1½-2½	(55)
4009.39	A	0	16.20	19.27	2½-2½	
3616.916	A	5	16.20	19.61	2½-2½	$4p^2D^o-4d^2D$
3567.171	A	3	18.13	19.59	1½-1½	(56)
5006.71	C	(2)	16.18	18.64	1½-2½	$4p^4S^o-5s^4P$
5136.13	B	2	16.18	18.58	1½-1½	(57)
5198.89	B	1	16.18	18.55	1½- ½	
4492.3	A	00	16.18	18.92	1½-2½	$4p^4S^o-4d^4D$ (58)
4032.812	A	7	16.18	19.24	1½-2½	$4p^4S^o-4d^4P$
3998.79	A	3	16.18	19.26	1½-1½	(59)
3979.86	A	3	16.18	19.28	1½- ½	
3922.63	A	00	16.19	19.33	-3½†	$^2Y^o-4d^2F$ (60)
5400.67	E	0	18.47	18.75	1½-1½	$4p^2P^o-5s^2P$
5518.74	D	3	16.45	18.69	½- ½	(61)
5559.06	D	2	16.47	18.69	1½- ½	
5362.69	B	1	16.45	18.75	½-1½	
8425.37	B	0	17.31	18.78	2½-2½	$4p'\ ^3F^o-4d^4F$
8522.64	B	0	17.31	18.76	2½-1½	(62)
6138.98	D	4	17.32	19.33	3½-3½	$4p'\ ^3F^o-4d^2F$
6326.43	D	00	17.32	19.27	3½-2½	(63)
*4189.71	A	6n	17.32	20.27	3½-3½	$4p'\ ^3F^o-4d'\ ^2F$
4165.11	A	1	17.31	20.27	2½-2½	(64)
4180.7	A	00	17.32	20.27	3½-2½	
4174.042	A	4	17.31	20.27	2½-3½	
*4162.698	A	10	17.32	20.29	3½-4½	$4p'\ ^3F^o-4d'\ ^2G$
4146.94	A	3	17.31	20.29	2½-3½	(65)
4162.39	A	2	17.32	20.29	3½-3½	
4259.18	A	2	17.37	20.27	2½-3½	$4p'\ ^3D^o-4d'\ ^2F$
4257.42	A	3	17.38	20.27	1½-2½	(66)
4249.92	A	0	17.37	20.27	2½-2½	
4230.98	A	4	17.37	20.29	2½-3½	$4p'\ ^3D^o-4d'\ ^2G$ (67)
*8223.16	B	1	18.84	20.34	4½-3½	$4d^4F-5p^4D^o$
8233.30	B	0	18.80	20.30	3½-2½	(68)
*8223.16	B	1	18.78	20.28	2½-1½	
8222.15	B	1	18.76	20.26	1½- ½	
8018.70	B	1	18.80	20.34	3½-3½	
8093.25	B	0	18.78	20.30	2½-2½	
8133.02	B	0	18.78	20.28	1½-1½	
7885.26	B	1	18.78	20.34	2½-3½	
8005.24	B	1	18.76	20.30	1½-2½	
8225.15	B	2	18.80	20.30	3½-2½	$4d^4F-5p^4P^o$
8179.31	B	2	18.78	20.28	2½-1½	(69)
8114.93	B	0	18.76	20.29	1½- ½	
8085.29	B	0	18.78	20.30	2½-2½	
8089.86	B	0	18.76	20.28	1½-1½	
7997.85	B	0	18.76	20.30	1½-2½	
7745.05	B	00	18.78	20.37	2½-1½	$4d^4F-5p^4S^o$
7665.02	B	0	18.76	20.37	1½-1½	(70)

Strongest Unclassified Lines of S II

6395.27	D	6	3911.32	A	1
4624.11	A	1	3831.41	A	3
4591.05	A	3n	3811.80	A	1n
4561.88	A	2	3730.64	A	1
4549.547	A	5	3678.13	A	1
4464.425	A	6	3385.81	A	2
4360.49	A	1	3371.90	A	1
4185.95	A	1	3368.09	A	1
4174.300	A	6	3356.41	A	1

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
S III I P 34.9 Anal C List A Oct 1944						
3632.022	A	6	17.87	21.07	2-3	$3d^3P^o-4p^3D$
3709.371	A	5	17.87	20.99	1-2	(1)
3747.90	A	3	17.67	20.96	0-1	
3710.42	A	0	17.67	20.99	2-2	
3750.74	A	1	17.67	20.98	1-1	
3384.87	A	4	17.67	21.38	2-2	$3d^3P^o-4p^3P$
3369.49	A	1	17.67	21.33	1-1	(2)
3370.38	A	2	17.67	21.33	2-1	
3387.13	A	2	17.67	21.31	1-0	
3384.01	A	2	17.67	21.38	1-2	
3367.18	A	2	17.67	21.33	0-1	
3234.17	B	(4)	17.67	21.48	2-1	$3d^3P^o-4p^3S$
3233.24	B	(3)	17.67	21.48	1-1	(3)
3231.10	B	(3)	17.67	21.48	0-1	
4253.593	A	9	18.17	21.07	2-3	$4s^3P^o-4p^3D$
4284.991	A	5	18.11	20.99	1-2	(4)
4332.71	A	4	18.11	20.96	0-1	
4361.53	A	2	18.17	20.99	2-2	
4340.30	A	2	18.11	20.96	1-1	
4418.84	A	00	18.17	20.96	2-1	
3838.316	A	6	18.17	21.38	2-2	$4s^3P^o-4p^3P$
3837.80	A	3	18.11	21.33	1-1	(5)
3899.09	P		18.17	21.33	2-1	
*3860.64 §	A	3	18.11	21.31	1-0	
3778.90	A	1	18.11	21.38	1-2	
3831.85	A	2	18.11	21.33	0-1	
3717.775	A	6	18.17	21.48	2-1	$4s^3P^o-4p^3S$
3682.005	A	4	18.11	21.48	1-1	(6)
3656.61	A	1	18.11	21.48	0-1	
4364.73	A	1	18.24	21.07	3-3	$3d^3D^o-4p^3D$
4467.83	B	(1)	18.23	20.99	2-2	(7)
4499.29	B	(0)	18.22	20.96	1-1	
4478.48	A	00	18.24	20.99	3-2	
4527.96	B	(0)	18.23	20.96	2-1	
4354.56	A	2	18.23	21.07	2-3	
4439.87	A	1	18.22	20.99	1-2	
3928.615	A	6	18.24	21.38	3-2	$3d^3D^o-4p^3P$
3983.77	A	3	18.23	21.33	2-1	(8)
3985.97	A	2	18.22	21.31	1-0	
3920.37	B	(0)	18.23	21.38	2-2	
3961.55	A	2	18.22	21.33	1-1	
3794.69	A	2	10.38	21.48	2-1	$3d^3D^o-4p^3S$
3774.52	A	00	10.37	21.48	1-1	(9)
4613.47	A	00	18.32	20.99	1-2	$4s^1P^o-4p^3D$
4677.67	A	0	18.32	20.96	1-1	(10)
4099.25	A	00	18.32	21.33	1-1	$4s^1P^o-4p^3P$
4125.4	A	00	18.32	21.31	1-0	(11)
3899.27	A	00	18.32	21.48	1-1	$4s^1P^o-4p^3S$ (12)
3136.00	B	(3)	21.38	25.32	2-3	$4p^3P-4d^3F^o$
3185.16	B	(3)	21.38	25.26	2-2	(13)
2985.98	B	(6)	21.38	25.51	2-2	$4p^3P-4d^3D^o$ (14)

Strongest Unclassified Lines Attributed to S III

4802.81	A	0
4283.70	A	0
4164.96	A	0
4148.91	A	1
4127.54	A	0
4111.56	A	3
4099.44	A	1
4095.17	A	0
4064.45	A	2
3997.97	A	0
3748.73	A	0
3699.37	A	1
3697.88	A	0
3638.15	A	0
3626.53	A	0
3549.72	A	1
3497.340	A	5

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
S IV I P 47.1 Anal C List A Aug 1944						
3097.46	A	5	22.40	26.38	½-1½	$4^2S-4^2P^o$
3117.75	A	3	22.40	26.36	½- ½	(1)
Cl I I P 12.9 Anal B List C Oct 1944						
9121.10	A	75	8.88	10.24	2½-2½	$4s^4P-4p^4P^o$
9393.81	A	50	8.95	10.26	1½-1½	(1)
9486.89	A	25	8.99	10.29	½- ½	
8948.01	A	50	8.88	10.26	2½-1½	
9191.67	A	60	8.95	10.29	1½- ½	
9584.77	A	50	8.95	10.24	1½-2½	
9703.35	A	40	8.99	10.26	½-1½	
Cl I continued						
8375.95	A	150	8.88	10.36	2½-3½	$4s^4P-4p^4D^o$
8585.96	A	100	8.95	10.39	1½-2½	(2)
8575.25	A	75	8.99	10.43	½-1½	
8212.00	A	100	8.88	10.39	2½-2½	
8333.29	A	100	8.95	10.43	1½-1½	
8428.25	A	100	8.99	10.45	½- ½	
7980.58	A	15	8.88	10.43	2½-1½	
8194.35	A	50	8.95	10.45	1½- ½	
7878.22	A	75	8.88	10.45	2½-2½	$4s^4P-4p^2D^o$
7997.80	A	50	8.95	10.49	1½-1½	(3)
7672.44	A	25	8.88	10.49	2½-1½	
8221.73	A	75	8.95	10.45	1½-2½	
8220.40	A	60	8.99	10.49	½-1½	
7414.10	A	90	8.88	10.55	2½-1½	$4s^4P-4p^2P^o$ †
7717.57	A	100	8.95	10.55	1½-1½	(4)
7934.62	A	100	8.99	10.55	½-1½	
7256.63	A	125	8.88	10.58	2½-1½	$4s^4P-4p^4S^o$
7547.06	A	100	8.95	10.58	1½-1½	(5)
7744.94	A	125	8.99	10.58	½-1½	
4438.48	A	20	8.88	11.66	2½-2½	$4s^4P-5p^4P^o$ †
4403.03	A	15	8.88	11.69	2½-1½	(6)
4389.76	A	25	8.88	11.69	2½-3½	$4s^4P-5p^4D^o$ †
4475.31	A	15	8.95	11.71	1½-2½	(7)
4379.90	A	20	8.95	11.77	1½-1½	
4383.30	A	20	8.95	11.78	1½-2½	$4s^4P-5p^2D^o$ †
4369.52	A	15	8.99	11.81	½-1½	(8)
4226.44	A	15	8.88	11.80	2½-1½	$4s^4P-5p^4S^o$ †
4323.35	A	20	8.95	11.80	1½-1½	(9)
10091.64	A	40	9.16	10.39	1½-2½	$4s^2P-4p^4D^o$ †
10392.45	A	5	9.24	10.43	½-1½	(10)
9744.33	A	30	9.16	10.43	1½-1½	
9592.20	A	75	9.16	10.45	1½-2½	$4s^2P-4p^2D^o$
9875.95	A	50	9.24	10.49	½-1½	(11)
9288.82	A	60	9.16	10.49	1½-1½	
9073.15	A	50	9.16	10.52	1½- ½	$4s^2P-4p^2S^o$
9632.37	A	20	9.24	10.52	½- ½	(12)
8912.88	A	40	9.16	10.55	1½-1½	$4s^2P-4p^2P^o$
9045.40	A	40	9.24	10.61	½- ½	(13)
8550.46	A	20	9.16	10.61	1½- ½	
9452.06	A	75	9.24	10.55	½-1½	
8686.28	A	30	9.16	10.58	1½-1½	$4s^2P-4p^4S^o$
9197.49	A	25	9.24	10.58	½-1½	(14)
4526.20	A	30	9.16	11.89	1½-1½	$4s^2P-5p^2P^o$
4601.00	A	20	9.24	11.92	½- ½	(15)
4469.37	A	18	9.16	11.92	1½- ½	
4661.22	A	18	9.24	11.89	½-1½	
Cl II I P 23.70 Anal A List B Nov 1944						
4794.54	A	250	13.32	15.89	2-3	$4s^5S^o-4p^5P$
4810.06	A	225	13.32	15.88	2-2	(1)
4819.46	A	200	13.32	15.88	2-1	
5423.25	A	150	13.62	15.89	4-3	$3d^5D^o-4p^5P$
5443.42	A	100	13.62	15.88	3-2	(2)
5456.27	A	50	13.62	15.88	2-1	
5423.52	A	100	13.62	15.89	3-3	
5444.25	A	60	13.62	15.88	2-2	
5457.02	A	75	13.62	15.88	1-1	
5434.36	A	25	13.62	15.89	2-3	
5444.99	A	10	13.62	15.88	1-2	
5457.47	A	30	13.62	15.88	0-1	
*5217.93	A	150	13.90	16.27	1-2	$4s^3S^o-4p^3P$
5221.34	A	75	13.90	16.27	1-1	(3)
*5217.93	A	150	13.90	16.27	1-0	
3353.39	A	125	14.28	17.96	1-1	$3s3p^5\ ^1P^o-4p'\ ^1P$ (4)
8360.63	A	15	14.79	16.27	3-2	$3d^3D^o-4p^3P$ † (5)
3750.00	A	30	14.79	18.08	3-3	$3d^3D^o-4p'\ ^3D$
3767.57	A	30	14.79	18.06	2-2	(6)
3774.25	A	25	14.79	18.06	1-1	
3769.13	A	20	14.79	18.06	3-2	
3768.13	A	18	14.79	18.06	2-1	
3748.46	A	15	14.79	18.08	2-3	
3773.68	A	20	14.79	18.06	1-2	
3650.13	A	30	14.79	18.17	3-4	$3d^3D^o-4p'\ ^3F$†
3658.38	A	20	14.79	18.16	2-3	(7)
3673.83	A	18	14.79	18.15	1-2	
3659.84	A	18	14.79	18.16	3-3	
3668.03	A	20	14.79	18.15	2-2	
3333.64	A	40	14.79	18.49	3-2	$3d^3D^o-4p'\ ^3P$†
*3315.44	A	100	14.79	18.51	2-1	(8)
3312.78	A	15	14.79	18.52	1-0	
3332.42	A	15	14.79	18.49	2-2	
3320.14	A	30	14.79	18.51	1-1	

Cl II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3829.27	A	15	15.00	18.22	2-3	3d' $^1D^o$-4p' ^1F (9)
3147.86	A	20	15.00	18.93	2-2	3d' $^1D^o$-4p' ^1D (10)
3161.44	A	20	15.02	18.92	3-2	3d' $^1F^o$-4p' ^1D (11)
4995.52	A	60	15.61	18.08	4-3	3d' $^3F^o$-4p' ^3D†
4970.12	A	50	15.58	18.06	3-2	(12)
4925.17	A	15	15.56	18.06	2-1	
4936.99	A	25	15.58	18.08	3-3	
4924.28	A	18	15.56	18.06	2-2	
4819.79	A	25	15.61	18.17	4-4	3d' $^3F^o$-4p' ^3F
4781.82	A	50	15.58	18.16	3-3	(13)
4755.64	A	50	15.56	18.15	2-2	
4836.79	A	20	15.61	18.16	4-3	
4798.40	A	15	15.58	18.15	3-2	
4765.30	A	10	15.58	18.17	3-4	
4739.42	A	10	15.56	18.16	2-3	
3092.22	A	50	15.61	19.60	4-3	3d' $^3F^o$-4p" ^3D†
3071.35	A	40	15.58	19.60	3-2	(14)
3058.00	A	40	15.56	19.59	2-1	
3053.74	A	10	15.56	19.60	2-2	
5333.70	A	15	15.64	17.96	1-1	4s' $^3D^o$-4p' ^1P† (15)
5078.25	A	150	15.65	18.08	3-3	4s' $^3D^o$-4p' ^3D
5103.04	A	125	15.65	18.06	2-2	(16)
5099.30	A	100	15.64	18.06	1-1	
5113.36	A	40	15.65	18.06	3-2	
5104.08	A	25	15.65	18.06	2-1	
5068.10	A	10	15.65	18.08	2-3	
5098.34	A	20	15.64	18.06	1-2	
4896.77	A	200	15.65	18.17	3-4	4s' $^3D^o$-4p' ^3F†
4904.76	A	135	15.65	18.16	2-3	(17)
4917.72	A	125	15.64	18.15	1-2	
4914.32	A	12	15.65	18.16	3-3	
4922.14	A	20	15.65	18.15	2-2	
4792.04	A	12	15.65	18.22	2-3	4s' $^3D^o$-4p' ^1F (18)
4343.62	A	100	15.65	18.49	3-2	4s' $^3D^o$-4p' ^3P†
4307.42	A	75	15.65	18.51	2-1	(19)
4291.76	A	50	15.64	18.52	1-0	
4336.26	A	45	15.65	18.49	2-2	
4304.07	A	40	15.64	18.51	1-1	
3123.72	A	15	15.65	19.60	3-3	4s' $^3D^o$-4p" ^3D†
3121.62	A	10	15.65	19.60	2-2	(20)
*3119.82	A	12	(15.65	19.60	2-3	
			15.64	19.80	1-2	
3045.00	A	10	15.65	19.70	2-2	4s' $^3D^o$-4p" ^1D (21)
2996.63	A	40	15.65	19.77	3-2	4s' $^3D^o$- ^3P†
3006.05	A	20	15.65	19.75	2-1	(22)
3018.82	A	12	15.64	19.73	1-0	
3004.39	A	10	15.64	19.75	1-1	
5634.84	A	18	15.77	17.96	1-1	3d' $^1P^o$-4p' ^1P (23)
4253.51	A	75	15.89	18.79	3-2	$4p^5P$-$5s^5S^o$
4241.38	A	60	15.88	18.79	2-2	(24)
4234.09	A	50	15.88	18.79	1-2	
3860.80	A	150	15.89	19.09	3-4	$4p^5P$-$4d^5D^o$
3850.97	A	100	15.88	19.09	2-3	(25)
3845.42	A	50	15.88	19.09	1-2	
3860.98	A	100	15.89	19.09	3-3	
3851.38	A	75	15.88	19.09	2-2	
3845.69	A	75	15.88	19.09	1-1	
3861.40	A	50	15.89	19.09	3-2	
3851.69	A	30	15.88	19.09	2-1	
3845.84	A	30	15.88	19.09	1-0	
6094.65	A	100	15.93	17.96	2-1	4s' $^1D^o$-4p' ^1P (28)
5790.50	A	25	15.93	18.06	2-1	4s' $^1D^o$-4p' ^3D† (27)
5392.12	A	100	15.93	18.22	2-3	4s' $^1D^o$-4p' ^1F (28)
4132.48	A	200	15.93	18.92	2-2	4s' $^1D^o$-4p' ^1D (29)
3276.81	A	40	15.93	19.70	2-2	4s' $^1D^o$-4p" ^1D (30)
3096.72	A	25	15.93	19.92	2-1	4s' $^1D^o$-4p" ^1P (31)
5285.48	A	30	16.27	18.60	2-2	$4p^3P$-3d' $^3P^o$ † (32)
5173.15	A	25	16.27	18.65	2-3	$4p^3P$-3d' $^3D^o$ †
5189.70	A	25	16.27	18.64	1-2	(33)
5162.34	A	10	16.27	18.86	0-1	
5193.03	A	10	16.27	18.84	2-2	
4585.03	A	15	16.27	18.98	2-1	$4p^3P$-3d' $^3S^o$ † (34)
*4572.13	A	100	18.27	18.97	2-1	$4p^3P$-$5s^3S^o$
4569.42	A	50	18.27	18.97	1-1	(35)
*4572.13	A	100	16.27	18.97	0-1	
3949.96	A	10	16.27	19.39	2-2	$4p^3P$-$3p^54s^3P^o$† (36)
3389.12	A	150	16.27	19.97	2-3	$4p^3P$-4d $^3D^o$
*3715.44	A	100	16.27	19.99	1-2	(37)
3307.90	A	50	16.27	20.00	0-1	
3316.86	A	50	16.27	19.99	2-2	
3768.45	A	40	18.27	20.00	1-1	

Cl II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
6661.68	A	75	16.32	18.17	5-4	3d' $^3G^o$-4p' ^3F
6686.04	A	45	16.32	18.16	4-3	(38)
6713.43	A	40	16.32	18.15	3-2	
6653.75	A	25	16.32	18.17	4-4	
6681.03	A	15	16.32	18.16	3-3	
4924.83	A	10	17.02	19.53	2-1	4s" $^3P^o$-4p" ^3S†
4907.17	A	15	17.01	19.53	1-1	(39)
4781.32	A	75	17.02	19.60	2-3	4s" $^3P^o$-4p" ^3D
4768.68	A	150	17.01	19.60	1-2	(40)
4771.09	A	40	17.01	19.59	0-1	
4785.44	A	50	17.02	19.60	2-2	
4778.93	A	45	17.01	19.59	1-1	
4490.00	A	50	17.02	19.77	2-2	4s" $^3P^o$- ^3P
4504.27	A	20	17.01	19.75	1-1	(41)
4519.19	A	18	17.02	19.75	2-1	
4536.78	A	20	17.01	19.73	1-0	
*4475.28	A	20	17.01	19.77	1-2	
*4497.30	A	18	17.01	19.75	0-1	
*4259.52	A	35	17.02	19.92	2-1	4s" $^3P^o$-4p" ^1P (42)
4208.03	A	30	17.02	19.95	2-2	4s" $^3P^o$-4p" ^3P
4191.59	A	15	17.01	19.96	1-1	(43)
4204.54	A	18	17.02	19.96	2-1	
4188.82	A	15	17.01	19.96	1-0	
4195.11	A	18	17.01	19.95	1-2	
4185.61	A	20	17.01	19.96	0-1	
6831.62	A	30	17.11	18.92	1-2	4s" $^1P^o$-4p' ^1D (44)
4771.66	A	20	17.11	19.70	1-2	4s" $^1P^o$-4p" ^1D (45)
4399.14	A	15	17.11	19.92	1-1	4s" $^1P^o$-4p" ^1P (46)
4943.24	A	15	17.20	19.70	1-2	3d" $^1P^o$-4p" ^1D (47)
4544.48	A	10	17.20	19.92	1-1	3d" $^1P^o$-4p" ^1P (48)
3843.26	A	100	17.20	20.41	1-0	3d" $^1P^o$-4p" ^1S (49)
*5175.85	A	20	17.31	19.70	2-2	3d" $^1D^o$-4p" ^1D (50)
4740.40	A	150	17.31	19.92	2-1	3d" $^1D^o$-4p" ^1P (51)
4372.91	A	80	17.45	20.27	3-2	3d" $^3D^o$-x'
4309.06	A	50	17.41	20.27	2-2	(52)
*4259.52	A	35	17.37	20.27	1-2	
3037.98	A	35	17.45	21.51	3-2	3d" $^3D^o$-x"
3006.98	A	20	17.41	21.51	2-2	(53)
2982.78	A	18	17.37	21.51	1-2	
6759.42	A	35	17.78	19.60	4-3	3d" $^3F^o$-4p' ^3D†
6850.21	A	40	17.80	19.60	3-2	(54)
6952.13	A	25	17.82	19.59	2-1	
6841.86	A	10	17.80	19.60	3-3	
3883.80	A	12	17.96	21.14	1-2	4p' ^1P-5s' $^1P^o$ (55)
3688.44	A	15	17.98	21.30	1-2	4p' ^1P-4d' $^3F^o$ (58)
3022.93	A	30	17.96	22.04	1-2	4p' ^1P-4d' $^1D^o$ (57)
6399.41	A	10	18.03	19.95	2-2	3d" $^3P^o$-4p" ^3P† (58)
6522.38	A	10	18.08	19.97	3-3	4p' ^3D-4d $^3D^o$ † (59)
4147.09	A	30	18.08	21.06	3-3	4p' ^3D-5s' $^3P^o$†
4130.88	A	25	18.06	21.05	2-2	(60)
4133.66	A	20	18.06	21.05	1-1	
4124.00	A	12	18.08	21.06	2-3	
4079.88	A	15	18.08	21.11	3-3	4p' ^3D-5d $^3D^o$†
4052.22	A	12	18.08	21.11	2-2	(81)
3805.24	A	75	18.08	21.32	3-4	4p' ^3D-4d' $^3F^o$
3798.80	A	50	18.06	21.31	2-3	(62)
3809.51	A	40	18.08	21.30	1-2	
3818.40	A	30	18.08	21.31	3-3	
3810.10	A	30	18.06	21.30	2-2	
3733.73	A	10	18.08	21.39	3-4	4p' ^3D-4d' $^3G^o$
3717.94	A	15	18.06	21.38	2-3	(63)
3522.14	A	40	18.08	21.59	3-3	4p' ^3D-4d' $^3D^o$
3509.39	A	40	18.08	21.58	2-2	(64)
3513.22	A	35	18.06	21.58	1-1	
3526.13	A	30	18.08	21.58	3-2	
3513.69	A	12	18.08	21.58	2-1	
3505.44	A	12	18.08	21.59	2-3	
3508.94	A	12	18.08	21.58	1-2	
3189.04	A	20	18.08	21.95	3-2	4p' ^3D-4d' $^3P^o$† (65)
4278.51	A	30	18.17	21.06	4-3	4p' ^3F-5s' $^3D^o$†
4270.81	A	25	18.18	21.05	3-2	(88)
4281.22	A	20	18.15	21.05	2-1	
4205.07	A	10	18.17	21.11	4-3	4p' ^3F-5d $^3D^o$ † (87)
3913.92	A	30	18.17	21.32	4-4	4p' ^3F-4d' $^3F^o$†
3918.70	A	20	18.18	21.31	3-3	(88)
3917.57	A	18	18.15	21.30	2-2	

Cl II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3833.40	A	200	18.17	21.39	4-5	4p' ^3F-4d' $^3G^o$
3827.62	A	150	18.16	21.39	3-4	(89)
3820.25	A	100	18.15	21.38	2-3	
3838.37	A	20	18.17	21.39	4-4	
3830.80	A	15	18.18	21.38	3-3	
3615.09	A	10	18.17	21.59	4-3	4p' ^3F-4d' $^3D^o$† (70)
*4235.49	A	25	18.22	21.14	3-2	4p' ^1F-5s' $^1D^o$ (71)
3781.23	A	30	18.22	21.49	3-3	4p' ^1F-4d' $^1F^o$ (72)
3231.75	A	12	18.22	22.04	3-2	4p' ^1F-4d' $^1D^o$ (73)
4811.57	A	12	18.49	21.06	2-3	4p' ^3P-5s' $^3D^o$
4857.04	A	10	18.51	21.05	1-2	(74)
4721.43	A	25	18.49	21.11	2-3	4p' ^3P-5d $^3D^o$ †
4748.67	A	20	18.51	21.11	1-2	(75)
4738.41	A	10	18.51	21.12	1-1	
3990.19	A	20	18.49	21.59	2-3	4p' ^3P-4d' $^3D^o$
4020.06	A	15	18.51	21.58	1-2	(76)
4036.53	A	10	18.52	21.58	0-1	
3618.88	A	15	18.49	21.90	2-1	4p' ^3P-4d' $^3S^o$
3639.19	A	18	18.51	21.90	1-1	(77)
3648.07	A	10	18.52	21.90	0-1	
3568.04	A	20	18.49	21.95	2-2	4p' ^3P-4d' $^3P^o$
3576.00	A	15	18.49	21.94	2-1	(78)
3603.72	A	10	18.51	21.94	1-0	
3587.78	A	12	18.51	21.95	1-2	
3604.51	A	15	18.52	21.94	0-1	
7578.07	A	10	18.64	20.27	2-2	3d' $^3D^o$-x' † (79)
5568.81	A	15	18.92	21.14	2-2	4p' ^1D-5s' $^1D^o$ (80)
*5175.85	A	20	18.92	21.30	2-2	4p' ^1D-4d' $^3F^o$ (81)
3954.21	A	20	18.92	22.04	2-2	4p' ^1D-4d' $^1D^o$ (82)
4224.92	A	15	19.60	22.52	3-2	4p' ^3D-5s" $^3P^o$†
*4235.49	A	25	19.60	22.51	2-1	(83)
3868.62	A	40	19.60	22.79	3-4	4p" ^3D-4d" $^3F^o$
3861.95	A	20	19.60	22.80	2-3	(84)
3854.75	A	15	19.59	22.80	1-2	
3864.60	A	15	19.60	22.80	3-3	
4482.02	A	10	19.77	22.52	2-2	^3P-5s" $^3P^o$†
*4497.30	A	18	19.77	22.51	2-1	(85)
*4475.28	A	20	19.75	22.51	1-0	

Strongest Unclassified Lines of Cl II

7565.53	A	18	3610.07	A	12
5356.14	A	10	3479.82	A	30
4584.28	A	20	3203.05	A	20
4157.82	A	25	3173.66	A	20
3981.94	A	15	3170.23	A	15
3793.75	A	25	3160.52	A	10

Cl III I P 39.7 Anal B List C Nov 1944

3602.10	B	9	21.56	24.98	2½-3½ $4s^4P$-$4p^4D^o$ †
3812.85	B	8	21.49	24.91	1½-2½ (1)
3622.69	B	7	21.45	24.85	½-1½
3682.05	B	7	21.56	24.91	2½-2½
3670.28	B	7	21.49	24.85	1½-1½
3658.95	B	7	21.45	24.82	½- ½
3705.45	B	6	21.49	24.82	1½- ½
*3340.42	B	9	21.56	25.25	2½-2½ $4s^4P$-$4p^4P^o$ †
3329.06	B	8	21.49	25.20	1½-1½ (2)
3387.60	B	8	21.56	25.20	2½-1½
*3340.42	B	9	21.49	25.19	1½- ½
3283.41	B	8	21.49	25.25	1½-2½
3289.80	B	7	21.45	25.20	½-1½
3191.45	B	9	21.56	25.42	2½-1½ $4s^4P$-$4p^4S^o$
3139.34	B	8	21.49	25.42	1½-1½ (3)
3104.46	B	6	21.45	25.42	½-1½
3925.87	A	5	22.11	25.25	1½-2½ $4s^3P$-$4p^4P^o$ † (4)
3720.45	A	8	22.11	25.42	1½-2½ $4s^3P$-$4p^3D^o$ †
3748.81	A	8	22.02	25.31	½-1½ (5)
3320.57	A	7	22.11	27.42	1½-1½ $4s^3P$-$4p^3P^o$
3259.32	A	8	22.02	27.39	½- ½ (8)
3336.18	A	5	22.11	27.39	1½- ½
3244.44	A	5	22.02	27.42	½-1½
3991.50	A	7	22.16	25.25	2½-2½ $3d^4P$-$4p^4P^o$ †
4059.07	A	8	22.16	25.20	2½-1½ (7)
4104.23	A	5	22.18	25.19	1½- ½
4018.50	A	6	22.18	25.35	1½-2½
4106.83	A	5	22.19	25.20	½-1½
3779.35	A	5	22.16	25.42	2½-2½ $3d^4P$-$4p^3D^o$ † (8)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Cl III continued						
3824.47	A	4	22.60	27.42	2½-1½	3d²D-4p²P° †
3707.34	A	6	22.48	27.39	1½- ½	(9)
3530.03	A	9	23.26	26.75	2½-3½	4s' ²D-4p' ²F° †
3560.68	A	8	23.26	26.73	1½-2½	(10)
3393.45	A	8	23.26	26.89	2½-2½	4s' ²D-4p' ²D° †
3392.89	A	8	23.26	26.90	1½-1½	(11)
3386.22	A	5	23.26	26.90	2½-1½	
3683.39	A	5	24.07	27.42	2½-1½	3d' ²D-4p' ²P° † (12)
4608.21	A	5	24.22	26.89	3½-2½	3d' ²F-4p' ²D° † (13)

Cl IV See introduction

A I I P 15.69 Anal A List D June 1944

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
9122.9660	A	500	11.50	12.85	2-1	4s 1°-4p 1
8115.3115	A	4000	11.50	13.02	2-3	(1) -4p 2
8014.7856	A	800	11.50	13.04	2-2	-4p 3
7723.7597	A	200	11.50	13.10	2-1	-4p 4
7635.1053	A	500	11.50	13.11	2-2	-4p 5
7147.0406	A	(8)	11.50	13.23	2-1	-4p 7
7067.2170	A	(20)	11.50	13.24	2-2	-4p 8
6965.4302	A	(20)	11.50	13.27	2-1	-4p 9
4251.1852	B	(60)	11.50	14.40	2-1	4s 1°-5p 1
4200.6751	B	(100)	11.50	14.44	2-3	(2) -5p 2
4190.7127	B	(50)	11.50	14.44	2-2	-5p 3
4164.1800	B	(80)	11.50	14.46	2-1	-5p 4
4158.5906	B	(100)	11.50	14.47	2-2	-5p 5
3947.5043	B	(40)	11.50	14.62	2-2	-5p 8
3948.9788	B	(100)	11.50	14.62	2-1	-5p 9
9657.7841	A	1500	11.57	12.85	1-1	4s 2°-4p 1
8434.647	A	2500	11.57	13.04	1-2	(3) -4p 3
8103.6922	A	2000	11.57	13.10	1-1	-4p 4
8006.1556	A	600	11.57	13.11	1-2	-4p 5
4300.1011	B	(100)	11.57	14.44	1-2	4s 2°-5p 3
4272.1690	B	(100)	11.57	14.46	1-1	(4) -5p 4
4266.2867	B	(100)	11.57	14.47	1-2	-5p 5
4198.3170	B	(100)	11.57	14.51	1-0	-5p 6
4044.4182	B	(100)	11.57	14.62	1-2	-5p 8
3606.5224	B	(50)	11.57	15.00	1-0	4s 2°-6p 6 (5)
10470.051	A	500	11.67	12.85	0-1	4s 3°-4p 1
8667.9430	A	400	11.67	13.10	0-1	(6) -4p 4
7948.1754	A	400	11.67	13.23	0-1	-4p 7
7724.3064	A	200	11.67	13.27	0-1	-4p 9
4522.3238	B	(40)	11.67	14.40	0-1	4s 3°-5p 1
4191.0296	B	(100)	11.67	14.62	0-1	(7) -5p 7
4181.8838	B	(80)	11.67	14.62	0-1	-5p 9
9784.5010	A	1000	11.78	13.04	1-2	4s 4°-4p 3
9354.218	A	200	11.78	13.10	1-1	(8) -4p 4
9224.498	A	1000	11.78	13.11	1-2	-4p 5
8521.4407	A	2000	11.78	13.23	1-1	-4p 7
8408.208	A	3000	11.78	13.24	1-2	-4p 8
8264.5209	A	1500	11.78	13.27	1-1	-4p 9
7503.8676	A	(15)	11.78	13.43	1-0	-4p 10
4702.3164	B	(100)	11.78	14.40	1-1	4s 4°-5p 1
4628.4410	B	(90)	11.78	14.44	1-2	(9) -5p 3
4596.0970	B	(90)	11.78	14.46	1-1	-5p 4
4510.7333	B	(80)	11.78	14.51	1-0	-5p 6
4345.1682	B	(90)	11.78	14.62	1-1	-5p 7
4333.5612	B	(90)	11.78	14.62	1-2	-5p 8
4335.3380	B	(70)	11.78	14.62	1-1	-5p 9
4259.3618	B	(100)	11.78	14.67	1-0	-5p 10
10673.55	C	500	12.85	14.01	1-2	4p 1-5s 1° (10)
6752.832	A	(20)	12.85	14.68	1-2	4p 1-4d 3° (11)
5650.7034	A	(30)	12.85	15.04	1-0	4p 1-5d 1° (12)
6032.124	A	(30)	13.02	15.07	3-4	4p 2-5d 4° (13)
5495.8720	A	(20)	13.02	15.26	3-4	4p 2-6d 4° (14)

For changes in Paschen notation see text § 37

A II I P 27.5 Anal B List A Oct 1944

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4401.02	A	7	16.34	19.14	3½-2½	3d⁴D-4p⁴P°
4371.36	A	8	16.35	19.18	2½-1½	(1)
4332.06	A	5	16.37	19.22	1½- ½	
4431.03	A	8	16.35	19.14	2½-2½	
4400.09	A	6	16.37	19.18	1½-1½	
4352.23	A	6	16.39	19.22	½- ½	
4460.56	A	6	16.37	19.14	1½-2½	
4420.90	A	7	16.39	19.18	½-1½	
4013.87	A	10	16.34	19.41	3½-3½	3d⁴D-4p⁴D°
3968.36	A	10	16.35	19.46	2½-2½	(2)
3914.76	A	7	16.37	19.53	1½-1½	
3891.40	A	6	16.39	19.56	½- ½	
3944.27	A	8	16.34	19.46	3½-2½	
3891.97	A	7	16.35	19.53	2½-1½	
3875.26	A	7	16.37	19.56	1½- ½	
4038.82	A	7	16.35	19.41	2½-3½	
3992.06	A	7	16.37	19.46	1½-2½	
3931.34	A	6	16.39	19.53	½-1½	
3786.40	A	6	16.34	19.60	3½-2½	3d⁴D-4p²D°
3714.74	A	3	16.35	19.68	2½-1½	(3)
3808.61	A	5	16.35	19.60	2½-2½	
3735.49	A	4	16.37	19.68	1½-1½	
*3830.43	A	5	16.37	19.60	1½-2½	
3750.50	A	4	16.39	19.68	½-1½	
3601.51	A	4	16.35	19.78	2½-1½	3d⁴D-4p²P°
3692.33	A	0n	16.37	19.72	1½- ½	(4)
3621.06	A	0	16.37	19.78	1½-1½	
3706.94	A	4	16.39	19.72	½- ½	
3635.13	A	00n	16.39	19.78	½-1½	
3499.49	A	5	16.35	19.88	2½-1½	3d⁴D-4p⁴S°
3517.90	A	3	16.37	19.88	1½-1½	(5)
3531.22	A	2	16.39	19.88	½-1½	
4806.07	A	20	16.57	19.14	2½-2½	4s⁴P-4p⁴P°
4933.24	A	6	16.68	19.18	1½-1½	(6)
4972.16	A	5	16.74	19.22	½- ½	
4735.93	A	15	16.57	19.18	2½-1½	
4847.90	A	8	16.68	19.22	1½- ½	
5009.35	A	8	16.68	19.14	1½-2½	
5062.07	A	8	16.74	19.18	½-1½	
4348.11	A	20n	16.57	19.41	2½-3½	4s⁴P-4p⁴D°
4426.01	A	15	16.68	19.46	1½-2½	(7)
4430.18	A	9	16.74	19.53	½-1½	
4266.53	A	10	16.57	19.48	2½-2½	
4331.25	A	10	16.68	19.53	1½-1½	
4379.74	A	8	16.74	19.56	½- ½	
4178.39	A	5	16.57	19.53	2½-1½	
4282.90	A	7	16.68	19.56	1½- ½	
4082.40	A	6	16.57	19.60	2½-2½	4s⁴P-4p²D°
4112.83	A	5	16.68	19.68	1½-1½	(8)
3974.76	A	6	16.57	19.68	2½-1½	
4228.18	A	7	16.68	19.60	1½-2½	
*4201.99	A	5	16.74	19.68	½-1½	
3845.42	A	5	16.57	19.78	2½-1½	4s⁴P-4p²P°
3974.48	A	5	16.68	19.78	1½-1½	(9)
4147.43	A	1n	16.74	19.72	½- ½	
4057.72	A	0n	16.74	19.78	½-1½	
3729.29	A	10	16.57	19.88	2½-1½	4s⁴P-4p⁴S°
3850.57	A	15	16.68	19.88	1½-1½	(10)
3928.62	A	9	16.74	19.88	½-1½	
*3922.54	A	1n	16.74	19.89	½- ½	4s⁴P-4p²S° (11)
5950.91	A	0	17.07	19.14	1½-2½	4s²P-4p⁴P°
5843.80	A	00n	17.07	19.18	1½-1½	(12)
6077.43	A	00	17.19	19.22	½- ½	
5734.37	A	0n	17.07	19.22	1½- ½	
5145.36	A	8	17.07	19.46	1½-2½	4s²P-4p⁴D°
5286.92	A	5	17.19	19.53	½-1½	(13)
5017.63	A	2	17.07	19.53	1½-1½	
4879.90	A	12	17.07	19.60	1½-2½	4s²P-4p²D°
4965.12	A	7	17.19	19.68	½-1½	(14)
4726.91	A	10	17.07	19.68	1½-1½	
4545.08	A	10	17.07	19.78	1½-1½	4s²P-4p²P°
4889.06	B	5	17.19	19.72	½- ½	(15)
4657.94	A	9	17.07	19.72	1½- ½	
4764.89	A	10	17.19	19.78	½-1½	
4383.79	A	4	17.07	19.88	1½-1½	4s²P-4p⁴S°
4587.90	B	2	17.19	19.88	½-1½	(16)
4375.96	A	5	17.07	19.89	1½- ½	4s²P-4p³S°
4579.39	A	8	17.19	19.89	½- ½	(17)
3108.82	A	000n	17.07	21.04	1½-2½	4s²P-4p' ²F° (18)
2979.05	A	6	17.19	21.33	½- ½	4s²P-4p' ²P° †
3033.52	A	6	17.19	21.26	½-1½	(19)

A II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
6643.79	A	10	17.55	19.41	4½-3½	3d⁴F-4p⁴D°
6684.36	A	8	17.62	19.46	3½-2½	(20)
6638.34	A	8	17.67	19.53	2½-1½	
6639.72	A	7	17.70	19.56	1½- ½	
6886.57	B	6	17.62	19.41	3½-3½	
6863.52	B	6	17.67	19.46	2½-2½	
6756.61	A	5	17.70	19.53	1½-1½	
7077.03	A	1	17.67	19.41	2½-3½	
6990.16	A	2	17.70	19.46	1½-2½	
6343.13	A	6	17.62	19.60	3½-2½	3d⁴F-4p²D°
*6138.67	A	3	17.67	19.68	2½-1½	(21)
6399.23	A	4	17.67	19.60	2½-2½	
6239.73	A	2	17.70	19.68	1½-1½	
6509.16	A	00	17.70	19.60	1½-2½	
6120.12	A	00	17.70	19.72	1½- ½	3d⁴F-4p²P° (22)
3594.41	A	00n	17.62	21.05	3½-3½	3d⁴F-4p' ²F° (23)
6808.55	A	3	17.86	19.68	½-1½	3d²P-4p²D°
7284.27	A	0	17.98	19.68	1½-1½	(24)
6861.30	A	4	17.98	19.78	1½-1½	3d²P-4p²P°
6666.36	A	5	17.86	19.72	½- ½	(25)
6437.63	A	2	17.86	19.78	½-1½	
6500.25	A	3	17.98	19.88	1½-1½	3d²P-4p⁴S° (26)
6483.10	A	6	17.98	19.89	1½- ½	3d²P-4p²S°
6103.56	A	4	17.86	19.89	½- ½	(27)
4042.20	A	1	17.98	21.04	1½-2½	3d²P-4p' ²F° (28)
3766.13	A	5	17.98	21.26	1½-1½	3d²P-4p' ²P°
3556.91	A	5	17.86	21.33	½- ½	(29)
3682.56	A	4	17.98	21.33	1½- ½	
3634.83	A	4	17.86	21.26	½-1½	
3605.89	A	6	17.98	21.41	1½-2½	3d²P-4p' ²D°
3490.89	A	4	17.86	21.40	½-1½	(30)
3611.84	A	4	17.98	21.40	1½-1½	
4609.60	A	15	18.37	21.05	2½-3½	4s' ²D-4p' ²F°
4589.93	A	9	18.35	21.04	1½-2½	(31)
4637.25	A	6	18.37	21.04	2½-2½	
4377.55	A	8	18.37	21.26	2½-1½	4s' ²D-4p' ²P°
4131.73	A	8	18.35	21.33	1½- ½	(32)
4237.23	A	7	18.35	21.26	1½-1½	
4072.01	A	9	18.37	21.41	2½-2½	4s' ²D-4p' ²D°
4042.91	A	8	18.35	21.40	1½-1½	(33)
4079.60	A	5	18.37	21.40	2½-1½	
4035.47	A	6	18.35	21.41	1½-2½	
4936.13	A	00n	18.54	21.04	2½-2½	3d²F-4p' ²F°
4904.75	A	6	18.54	21.05	2½-3½	(34)
4530.57	A	4	18.54	21.26	2½-1½	3d²F-4p' ²P° (35)
4182.98	A	0	18.46	21.41	3½-2½	3d²F-4p' ²D°
4309.11	A	2	18.54	21.40	2½-1½	(36)
*4300.66	A	6	18.54	21.41	2½-2½	
5141.84	A	6	18.65	21.05	2½-3½	3d²D-4p' ²F°
5017.16	A	6	18.58	21.04	1½-2½	(37)
5176.28	A	3	18.65	21.04	2½-2½	
4732.08	B	5	18.65	21.26	2½-1½	3d²D-4p' ²P°
4474.77	A	6	18.58	21.33	1½- ½	(38)
4598.77	A	5	18.58	21.26	1½-1½	
4481.83	A	8	18.65	21.41	2½-2½	3d²D-4p' ²D°
4370.76	A	6	18.58	21.40	1½-1½	(39)
4490.99	A	5	18.65	21.40	2½-1½	
4362.07	A	5	18.58	21.41	1½-2½	
5245.49	A	0	19.18	21.53	1½-1½	4p⁴P°-3d' ²P (40)
*4072.40	A	7	19.14	22.17	2½-1½	4p⁴P°-s²P
4124.09	A	0	19.18	22.17	1½-1½	(41)
4127.09	B	00n	19.22	22.21	½- ½	
3765.27	A	6	19.14	22.42	2½-2½	4p⁴P°-5s⁴P
3720.43	A	5	19.18	22.50	1½-1½	(42)
3669.62	A	5	19.22	22.59	½- ½	
3678.27	A	5	19.14	22.50	2½-1½	
3622.15	A	6	19.18	22.59	1½- ½	
3809.49	A	7	19.18	22.42	1½-2½	
3770.54	A	6	19.22	22.50	½-1½	
*3564.34 §	B	4	19.14	22.60	2½-1½	4p⁴P°-5s²P
*3603.91	B	3	19.18	22.60	1½-1½	(43)
*3650.90	A	4	19.22	22.60	½-1½	

A II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3491.54	A	8	19.14	22.67	2½-3½	4p⁴P°-4d⁴D
3514.39	A	9	19.18	22.69	1½-2½	(44)
3535.33	A	6	19.22	22.71	½-1½	
3476.74	A	6	19.14	22.69	2½-2½	
3491.24	A	6	19.18	22.71	1½-1½	
3509.78	A	6	19.22	22.74	½- ½	
3454.10	A	5	19.14	22.71	2½-1½	
*3466.34	A	5	19.18	22.74	1½- ½	
3478.24	A	4	19.18	22.73	1½- ½	4p⁴P°-3d' ²S
3521.98	A	4	19.22	22.73	½- ½	(45)
3269.05	A	2	19.14	22.92	2½-3½	4p⁴P°-4d⁴F
3254.03	A	1	19.18	22.97	1½-2½?	(46)
3263.60	A	5	19.22	23.00	½-1½	
3221.64	A	3	19.14	22.97	2½-2½	
3226.00	A	3	19.18	23.00	1½-1½	
3194.25	A	5	19.14	23.00	2½-1½	
3139.02	A	7	19.14	23.07	2½-3½	4p⁴P°-4d⁴P
3212.54	A	5	19.18	23.02	1½-1½	(47)
3281.72	A	6	19.22	22.98	½- ½	
3181.05	A	7	19.14	23.02	2½-1½	
3243.70	A	7	19.18	22.98	1½- ½	
3169.68	A	8	19.18	23.07	1½-2½	
3249.82	A	7	19.22	23.02	½-1½	
3186.19	A	3	19.18	23.05	1½-2½	4p⁴P°-4d²D (48)
3146.47	A	2	19.14	23.06	2½-3½	4p⁴P°-4d²F (49)
*6818.39	A	4	19.46 19.53	21.27 21.34	2½-2½ 1½-1½	4p⁴D°-3d' ²D (50)
4561.03	A	4	19.46	22.17	2½-1½	4p⁴D°-a²P
4593.44	A	2	19.53	22.21	1½- ½	(51)
4666.28	B	2n	19.53	22.17	1½-1½	
4649.06	B	0n	19.56	22.21	½- ½	
*4103.91	A	10	19.41	22.42	3½-2½	4p⁴D°-5s⁴P
*4072.40	A	7	19.46	22.50	2½-1½	(52)
4033.83	A	6	19.53	22.59	1½- ½	
4179.31	A	5	19.46	22.42	2½-2½	
4156.11	A	5	19.53	22.50	1½-1½	
4076.64	A	5	19.56	22.59	½- ½	
4267.47	B	0	19.53	22.42	1½-2½	
4201.58	A	2	19.56	22.50	½-1½	
3933.19	A	0	19.46	22.60	2½-1½	4p⁴D°-5s²P
4011.23	A	3	19.53	22.60	1½-1½	(53)
*3922.54	A	1n	19.56	22.70	½- ½	
4053.56	A	0	19.56	22.60	½-1½	
3780.84	A	8	19.41	22.67	3½-3½	4p⁴D°-4d⁴D
3826.83	A	6	19.46	22.69	2½-2½	(54)
3872.15	A	5	19.53	22.71	1½-1½	
3880.34	A	4	19.56	22.74	½- ½	
3763.52	A	5	19.41	22.69	3½-2½	
3799.39	A	6	19.46	22.71	2½-1½	
3841.54	A	3	19.53	22.74	1½- ½	
3844.75	A	4	19.46	22.67	2½-3½	
3900.63	A	5	19.53	22.69	1½-2½	
3911.58	A	5	19.56	22.71	½-1½	
3856.16	A	1	19.53	22.73	1½- ½	4p⁴D°-3d' ²S
3895.26	A	2	19.56	22.73	½- ½	(55)
3588.44	A	10	19.41	22.85	3½-4½	4p⁴D°-4d⁴F
3576.62	A	10	19.46	22.92	2½-3½	(56)
3582.35	A	8	19.53	22.97	1½-2½	
3581.62	A	6	19.56	23.00	½-1½	
3521.27	A	5	19.41	22.92	3½-3½	
3520.00	A	6	19.46	22.97	2½-2½	
3548.51	A	7	19.53	23.00	1½-1½	
*3466.34	A	5	19.41	22.97	3½-2½	
3487.33	A	3	19.46	23.00	2½-1½	
3370.97	A	5	19.41	23.07	3½-2½	4p⁴D°-4d⁴P
3471.59	A	2	19.46	23.02	2½-1½	(57)
3569.94	A	1	19.53	22.98	1½- ½	
3421.64	A	5	19.46	23.07	2½-2½	
3532.19	A	00n	19.53	23.02	1½-1½?	
3603.46	A	3	19.56	22.98	½- ½	
3480.52	A	5	19.53	23.07	1½-2½	
3565.02	A	5	19.56	23.02	½-1½	
3438.14	A	000n	19.46	23.05	2½-1½	4p⁴D°-4d²D (58)
3379.48	A	2n	19.41	23.06	3½-3½	4p⁴D°-4d²F
3341.77	A	2	19.46	23.16	2½-2½	(59)
3430.44	A	4	19.46	23.06	2½-3½	
*3397.89	A	4	19.53	23.16	1½-2½	
7348.11	A	2	19.60	21.27	2½-2½	4p²D°-3d' ²D
7440.54	A	0	19.68	21.34	1½-1½	(60)
7090.55	A	000	19.60	21.34	2½-1½	
6376.00	A	0	19.60	21.53	2½-1½	4p²D°-3d' ²P (61)
4792.12	A	5	19.60	22.17	2½-1½	4p²D°-a²P
4867.59	A	3	19.68	22.21	1½- ½	(62)
4949.45	A	2	19.68	22.17	1½-1½	

A II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4372.50	A	0	19.60	22.42	2½-2½	4p²D°-5s⁴P
4379.25	A	1	19.68	22.50	1½-1½	(63)
4255.62	A	3	19.60	22.50	2½-1½	
*4243.71	A	2n	19.68	22.59	1½- ½	
4502.95	A	5	19.68	22.42	1½-2½?	
*4103.91	A	10	19.60	22.60	3½-1½	4p²D°-5s²P
4076.96	A	4	19.68	22.70	1½- ½	(64)
4218.69	A	5	19.68	22.60	1½-1½	
4007.66	A	1	19.60	22.67	2½-3½	4p²D°-4d⁴D
4096.47	A	000	19.68	22.69	1½-2½	(65)
3988.18	A	4	19.60	22.69	2½-2½	
4065.14	B	3	19.68	22.71	1½-1½	
3958.39	A	5	19.60	22.71	2½-1½	
4031.41	B	2	19.68	22.74	1½- ½?	
4047.51	A	3	19.68	22.73	1½- ½	4p²D°-3d' ²S (66)
3717.17	A	5	19.60	22.92	2½-3½	4p²D°-4d⁴F
3746.92	A	4	19.68	22.97	1½-2½	(67)
3656.05	A	5	19.60	22.97	2½-2½	
3709.90	A	4	19.68	23.00	1½-1½	
3620.82	A	0	19.60	23.00	2½-1½	
3550.03	A	4	19.60	23.07	2½-2½	4p²D°-4d⁴P
3692.17	A	00n	19.68	23.02	1½-1½	(68)
*3603.91	B	3	19.60	23.02	2½-1½?	
3733.36	A	0n	19.68	22.98	1½- ½	
3635.67	A	2	19.68	23.07	1½-2½	
3570.77	A	00n	19.60	23.05	2½-2½	4p²D°-4d²D (89)
3559.53	A	6	19.60	23.06	2½-3½	4p²D°-4d²F
3545.58	A	10	19.68	23.16	1½-2½	(70)
3464.14	A	6	19.60	23.16	2½-2½	
3137.66	A	4	19.60	23.53	2½-1½	4p²D°-4d²P
3273.36	A	4	19.68	23.45	1½- ½	(71)
3204.34	A	5	19.68	23.53	1½-1½	
3000.45	A	5	19.68	23.79	1½-1½	4p²D°-3d" ²D†
3014.49	A	5	19.68	23.77	1½-2½	(72)
7617.86	C	1	19.72	21.34	½-1½	4p²P°-3d' ²D (73)
7055.01	A	2	19.78	21.53	1½-1½	4p²P°-3d' ²P
6799.32	A	2	19.72	21.53	½-1½	(74)
5165.82	A	5	19.78	22.17	1½-1½	4p²P°-a²P
4942.96	A	4	19.72	22.21	½- ½	(75)
4681.52	A	1	19.78	22.42	1½-2½	4p²P°-5s⁴P
*4440.09	A	3	19.72	22.50	½-1½	(76)
4547.78	A	5	19.78	22.50	1½-1½	
*4300.68	A	8	19.72	22.59	½- ½	
4401.74	A	1n	19.78	22.59	1½- ½	
4374.87	A	3	19.78	22.60	1½-1½	4p²P°-5s²P
4129.70	A	4	19.72	22.70	½- ½	(77)
4222.67	A	5	19.78	22.70	1½- ½	
4275.19	A	4	19.72	22.60	½-1½	
*4243.71	A	2n	19.78	22.69	1½-2½	4p²P°-4d²D
4210.00	A	00n	19.78	22.71	1½-1½	(78)
4173.77	D	1	19.78	22.74	1½- ½	
4099.47	A	3	19.72	22.73	½- ½	4p²P°-3d' ²S (79)
3869.61	A	0	19.78	22.97	1½-2½?	4p²P°-4d⁴F
*3753.53	A	4	19.72	23.00	½-1½	(80)
3751.06	A	0	19.78	23.07	1½-2½	4p²P°-4d⁴P
3811.22	A	1	19.78	23.02	1½-1½	(81)
3777.55	A	2	19.72	22.98	½- ½	
3855.18	A	0	19.78	22.98	1½- ½	
3655.29	A	6	19.78	23.16	1½-2½?	4p²P°-4d²F (82)
3293.66	A	7	19.78	23.53	1½-1½	4p²P°-4d²P
3307.24	A	6	19.72	23.45	½- ½	(83)
3366.59	A	4	19.78	23.45	1½- ½	
3236.82	A	4	19.72	23.53	½-1½	
3093.41	A	8	19.78	23.77	1½-2½	4p²P°-3d" ²D
3028.93	A	6	19.72	23.79	½-1½	(84)
4865.96	A	5	19.88	22.42	1½-2½	4p⁴S°-5s⁴P
4721.62	B	4	19.88	22.50	1½-1½	(85)
4564.43	A	5	19.88	22.59	1½- ½	
4535.51	A	4	19.88	22.60	1½-1½	4p⁴S°-5s²P
4372.09	A	0n	19.88	22.70	1½- ½	(86)
4394.65	A	2n	19.88	22.69	1½-2½	4p⁴S°-4d⁴D
4358.53	A	1	19.88	22.71	1½-1½	(87)
4319.69	A	00n	19.88	22.74	1½- ½	
4338.24	B	1	19.88	22.73	1½- ½	4p⁴S°-3d' ²S (88)
*3994.81	A	5	19.88	22.97	1½-2½	4p⁴S°-4d⁴F
3952.74	A	6	19.88	23.00	1½-1½	(89)

A II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3868.53	A	8	19.88	23.07	1½-2½	4p⁴S°-4d⁴P
3932.55	A	7	19.88	23.02	1½-1½	(90)
3979.36	A	7	19.88	22.98	1½- ½	
3893.14	A	00n	19.88	23.05	1½-2½	4p⁴S°-4d²D (91)
3383.94	A	2	19.88	23.05	1½-1½?	4p⁴S°-4d²P (92)
5305.77	A	3	19.89	22.21	½- ½	4p²S°-a²P (93)
4730.69	A	2	19.89	22.50	½-1½	4p²S°-5s⁴P
4572.92	A	1	19.89	22.59	½- ½	(94)
4543.91	A	1	19.89	22.60	½-1½	4p²S°-5s²P (95)
3388.54	A	7	19.89	23.53	½-1½	4p²S°-4d²P
3465.80	A	3	19.89	23.45	½- ½	(96)
3161.38	A	4	19.89	23.79	½-1½	4p²S°-3d" ²D (97)
4385.08	B	4	20.65	23.47	½-1½	4s" ²S-5p²P°
4367.87	A	5	20.65	23.48	½- ½	(98)
4309.25	A	3	20.65	23.52	½-1½	4s" ²S-5p²D° (99)
4097.15	A	3	20.65	23.67	½- ½	4s" ²S-5p²S° (100)
4052.94	A	5	20.65	23.70	½-1½	4s" ²S-4p" ²P°
*3994.81	A	5	20.65	23.74	½- ½	(101)
8172.28	A	7	21.05	23.05	3½-2½	4p' ²F°-4d²D
8114.92	A	10	21.04	23.05	2½-1½	(102)
6123.38	A	3	21.04	23.05	2½-2½	
*6138.67	A	3	21.05	23.06	3½-3½	4p' ²F°-4d²F (103)
4538.73	A	1n	21.05	23.77	3½-2½	4p' ²F°-3d" ²D
4480.85	A	0n	21.04	23.79	2½-1½	(104)
3946.10	A	7	21.05	24.18	3½-2½	4p' ²F°-5s' ²D
3925.71	A	3	21.04	24.18	2½-1½	(105)
3561.04	A	6	21.05	24.52	3½-4½	4p' ²F°-4d' ²G
3545.84	A	9	21.04	24.52	2½-3½	(106)
3562.19	A	4	21.05	24.52	3½-3½	
3429.64	A	3	21.05	24.65	3½-2½	4p' ²F°-4d' ²D
3432.64	A	2	21.04	24.63	2½-1½	(107)
3414.46	A	3	21.04	24.85	2½-2½	
3373.87	A	2n	21.04	24.69	2½-1½	4p' ²F°-6s²P (108)
3376.46	A	7	21.05	24.71	3½-3½	4p' ²F°-4d' ²F
3350.94	A	6	21.04	24.72	2½-2½	(109)
3365.54	A	4	21.05	24.72	3½-2½	
3361.73	A	3	21.04	24.71	2½-3½	
5296.48	A	00n	21.12	23.45	2½-3½	3d' ²F-5p⁴D° (110)
4205.19	A	00n	21.12	24.06	2½-3½?	3d' ²F-4f²F° (111)
4914.32	A	2	21.26	23.77	1½-2½	4p' ²P°-3d" ²D
4877.08	A	0n	21.26	23.79	1½-1½	(112)
4227.02	A	4	21.26	24.18	1½-2½	4p' ²P°-5s' ²D
4337.10	A	6	21.33	24.18	½-1½	(113)
4226.65	A	2	21.26	24.18	1½-1½	
3713.03	A	2	21.26	24.58	1½-1½	4p' ²P°-6s⁴P (114)
3600.22	A	3	21.26	24.69	1½-1½	4p' ²P°-4d' ²P
3754.06	A	3	21.33	24.62	½- ½	(115)
3671.01	A	3	21.26	24.62	1½- ½	
3680.06	A	5	21.33	24.69	½-1½	
3639.85	A	7	21.26	24.65	1½-2½	4p' ²P°-4d' ²D
3660.44	A	6	21.26	24.63	1½-1½	(116)
3593.76	A	00n	21.26	24.69	1½-1½	4p' ²P°-6s²P
3673.26	A	4	21.33	24.69	½-1½	(117)
3104.38	A	5	21.26	25.24	1½-1½	4p' ²P°-5d²P
3153.80	A	4	21.33	25.25	½- ½	(118)
3094.98	A	3	21.26	25.25	1½- ½	
3163.61	A	1	21.33	25.24	½-1½	
3088.24	A	5	21.26	25.26	1½-2½	4p' ²P°-5d²D (119)
3026.75	A	4	21.26	25.34	1½- ½	4p' ²P°-4d' ²S
3082.99	A	4	21.33	25.34	½- ½	(120)
5625.74	A	0n	21.27	23.47	2½-1½	3d' ²D-5p²P° (121)
5090.55	A	2	21.27	23.70	2½-1½	3d' ²D-4p" ²P°
5125.84	A	0	21.34	23.74	1½- ½	(122)
4433.83	A	5	21.27	24.06	2½-3½	3d' ²D-4f²F°
4537.67	B	4	21.34	24.06	1½-2½	(123)
4438.12	A	1	21.27	24.06	2½-2½	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
A II continued						
4114.53	A	2	21.27	24.27	2½-2½	3d' ^2D-4f $^2D^o$
•4201.99	A	5	21.34	24.27	1½-1½	(124)
4116.39	B	4	21.27	24.27	2½-1½	
4199.93	A	3	21.34	24.27	1½-2½	
5812.81	A	0	21.41	23.53	2½-1½	4p' $^2D^o$-4d ^2P
						(125)
5216.84	A	3	21.41	23.77	2½-2½	4p' $^2D^o$-3d" ^2D
5162.80	A	1	21.40	23.79	1½-1½	(126)
5204.46	B	0	21.40	23.77	1½-2½	
4448.88	A	6	21.41	24.18	2½-2½	4p' $^2D^o$-5s' ^2D
4439.45	A	3	21.40	24.18	1½-1½	(127)
4448.47	A	1	21.41	24.18	2½-1½	
•4440.09	A	3	21.40	24.18	1½-2½	
•3830.43	A	5	21.40	24.62	1½- ½	4p' $^2D^o$-4d' ^2P
•3753.53	A	4	21.40	24.69	1½-1½	(128)
3803.19	A	6	21.41	24.65	2½-2½	4p' $^2D^o$-4d' ^2D
3819.04	A	4	21.40	24.63	1½-1½	(129)
3825.70	A	5	21.41	24.63	2½-1½	
3796.60	A	4	21.40	24.65	1½-2½	
3746.46	A	4	21.40	24.69	1½-1½†	4p' $^2D^o$-8s ^2P
						(130)
3737.89	A	8	21.41	24.71	2½-3½	4p' $^2D^o$-4d' ^2F
3718.31	A	6	21.40	24.72	1½-2½	(131)
3734.51	A	4	21.41	24.72	2½-2½	
3232.42	A	3	21.41	25.24	2½-1½	4p' $^2D^o$-5d ^2P
3207.61	A	4	21.40	25.25	1½- ½	(132)
3217.70	A	3	21.40	25.24	1½-1½	
3205.03	A	4	21.41	25.26	2½-2½	4p' $^2D^o$-5d ^2D
						(133)
5891.71	B	1	21.53	23.70	1½-1½	3d' ^2R-4p" $^2P^o$
5577.70	A	2	21.53	23.74	1½- ½	(134)
4888.29	A	0	21.53	24.06	1½-2½	3d' ^2P-4f $^2F^o$
						(135)
4498.55	A	5	21.53	24.27	1½-2½	3d' ^2R-4f $^2D^o$
						(136)
6985.74	A	000n	23.47	25.24	½-1½	5p $^2P^o$-5d ^2P
						(137)

Strongest Unclassified Lines Attributed to A II

7689.36	A	3
7380.45	A	4
7233.58	A	4
6441.95	A	3
6324.45	B	3
5454.41	A	3
5407.44	A	4
5402.69	A	3
5397.60	A	3
4882.25	A	4
4703.36	A	4
4682.29	B	4
4611.25	A	3
4563.78	A	5
4336.51	A	3
4297.99	A	5
4229.89	A	4
4217.45	B	4
4203.43	A	5
4189.67	A	4
4168.98	B	3
4128.65	A	5
4080.67	A	4
3774.54	A	3
3837.89	A	3
3837.05	A	5
3543.16	A	5
3470.27	A	3
3379.58	A	5
3308.50	A	3
3293.95	A	4
3291.47	A	4
3259.71	A	4
3247.55	A	3
3218.75	A	4
3165.31	A	5
3161.45	A	3
3148.24	A	3
3136.55	A	4
3109.75	A	3
3102.63	A	3
3099.97	A	4
3085.05	A	4
3066.92	A	4
3060.94	B	5
3053.20	A	3
3046.10	A	4
3003.00	A	3
3000.14	A	4

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
A III I P 40.8 Anal C List D Nov 1944						
3285.85	A	25	21.53	25.28	2-3	4s $^5S^o$-4p ^5P
3301.88	A	20	21.53	25.28	2-2	(1)
3311.25	A	15	21.53	25.25	2-1	
3480.55	A	20	24.28	27.83	3-3	4s' $^3D^o$-4p' ^3D†
3503.58	A	15	24.27	27.79	2-2	(2)
3499.67	A	12	24.27	27.80	1-1	
3338.13	A	25	24.28	27.98	3-4	4s' $^3D^o$-4p' ^3F†
3344.72	A	20	24.27	27.96	2-3	(3)
3358.49	A	15	24.27	27.94	1-2	
3024.05	B	12	25.58	29.66	2-3	4s" $^3P^o$-4p" ^3D†
3054.82	B	12	25.62	29.66	1-2	(4)
3078.15	B	10	25.64	29.65	0-1	
3064.77	B	10	25.62	29.65	1-1	
3795.37	B	20	28.41	29.66	2-3	3d" $^3P^o$-4p" ^3D†
3858.32	B	10	28.46	29.66	1-2	(5)
3391.85	B	15	26.41	30.05	2-2	3d" $^3P^o$-4p" ^3P†
						(8)
A IV I P 61 Anal B List A Nov 1944						
3077.40	A	8	31.77	35.78	1½-1½	4s ^2P-4p $^4P^o$
3016.15	A	5	30.95	35.71	½-1½	(1)
3134.90	A	3	31.77	35.71	1½-1½	
3037.98	A	6	31.77	35.83	1½-1½	4s ^2P-4p $^2D^o$ †
						(2)
K I I P 4.32 Anal A List C Nov 1944						
7664.907//	A	10R	0.00	1.61	½-1½	4^2S-4^2P^o
7698.979	A	10R	0.00	1.60	½- ½	(1)
4642.37	H	(2)Forb	0.00	2.66	½-2½	4^2S-3^2D
4641.77	H	(1)Forb	0.00	2.66	½-1½	(2)
4044.145	B	8R	0.00	3.05	½-1½	4^2S-5^2P^o
4047.214	B	6R	0.00	3.05	½- ½	(3)
3446.38	G	8R	0.00	3.58	½-1½	4^2S-6^2P^o
3447.41	G	6R	0.00	3.58	½- ½	(4)
12523.0	F	(90)	1.61	2.60	1½- ½	4^2P^o-5^2S
12434.3	F	(100)	1.60	2.60	½- ½	(5)
11772.66	C	15r	1.61	2.66	1½-2½	4^2P^o-3^2D
11889.76	C	10	1.60	2.66	½-1½	(6)
11769.41	D	3	1.61	2.66	1½-1½	
6964.69	E	(1)	1.61	3.38	1½-2½	4^2P^o-4^2D
6936.27	E	(1)	1.60	3.38	½-1½	(7)
6964.18	E	(-)	1.61	3.38	1½-1½	
9950.5	D	20N	2.60	3.84	½-1½	5^2S-7^2P^o
9955.2	D	10N	2.60	3.84	½- ½	(8)
11022.3	D	10NW	2.66	3.78	—	3^2D-5^2F^o
						(9)
9595.60	E	50N1W	2.66	3.94	2½-	3^2D-6^2F^o
9597.76	E	20N1W	2.68	3.94	1½-	(10)
K II I P 31.7 Anal A List D June 1944						
4829.23	A	30	20.06	22.62	2-1	4s 1°-4p 1
4186.24	A	30	20.08	23.01	2-3	(1) -4p 2
4134.72	A	30	20.06	23.05	2-2	-4p 3
3995.10	A	10	20.06	23.15	2-1	-4p 4
3897.92	A	15	20.06	23.23	2-2	-4p 5
3739.13	A	9	20.06	23.36	2-1	-4p 7
3681.54	A	15	20.06	23.41	2-2	-4p 8
3618.49	A	15	20.06	23.47	2-1	-4p 9
5005.60	A	15	20.15	22.62	1-1	4s 2°-4p 1
4363.40	A	30	20.15	23.05	1-2	(2) -4p 3
4114.99	A	30	20.15	23.15	1-1	-4p 4
4012.10	A	10	20.15	23.23	1-2	-4p 5
3783.19	A	15	20.15	23.41	1-2	-4p 8
3767.36	A	15	20.15	23.43	1-0	-4p 6
3716.60	A	9	20.15	23.47	1-1	-4p 9
5056.27	A	8	20.18	22.62	0-1	3d 1°-4p 1
3873.74	A	10	20.18	23.36	0-1	(3) -4p 7
3744.42	A	9	20.18	23.47	0-1	-4p 9
4505.33	A	30	20.31	23.05	1-2	3d 2°-4p 3
4340.03	A	30	20.31	23.15	1-1	(4) -4p 4
4225.87	A	30	20.31	23.23	1-2	-4p 5
3972.58	A	15	20.31	23.41	1-2	-4p 8

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
K II continued						
4659.38	A	15	20.36	23.01	2-3	3d 3°-4p 2
4423.73	A	10	20.36	23.15	2-1	(5) -4p 4
4305.00	A	30	20.36	23.23	2-2	-4p 5
3966.72	A	15	20.36	23.47	2-1	-4p 9
5536.01	A	(3)	20.39	22.62	0-1	4s 3°-4p 1
4466.65	A	20	20.39	23.15	0-1	(6) -4p 4
4149.19	A	30	20.39	23.36	0-1	-4p 7
4001.24	A	15	20.39	23.47	0-1	-4p 9
5969.64	A	(2)	20.55	22.62	1-1	4s 4°-4p 1
4943.24	A	5	20.55	23.05	1-2	(7) -4p 3
4608.45	A	30	20.55	23.23	1-2	-4p 5
4388.18	A	30	20.55	23.36	1-1	-4p 7
4309.10	A	30	20.55	23.41	1-2	-4p 8
4222.97	A	30	20.55	23.47	1-1	-4p 9
3530.75	A	20	20.55	24.05	1-0	-4p 10

For changes in Paschen notation see text § 37

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
K III I P 46 Anal D List D Nov 1944						
3322.40	A	6	25.61	29.32	2½-2½	4s ^4P-4p $^4P^o$ †
3420.82	A	6	25.76	29.37	1½-1½	(1)
3278.79	A	6	25.61	29.37	2½-1½	
3468.32	A	6	25.76	29.32	1½-2½	
3513.88	A	5	25.86	29.37	½-1½	
2992.24	A	6	25.61	29.73	2½-3½	4s ^4P-4p $^4D^o$ †
3052.07	A	6	25.76	29.81	1½-2½	(2)
3056.84	A	5	25.86	29.90	½-1½	
•3481.11 §	B	6	26.26	29.81	1½-2½	4s ^2P-4p $^4D^o$
						(3)
3289.06	B	6	26.26	30.01	1½-2½	4s ^2P-4p $^2D^o$ †
3421.83	A	4	26.45	30.05	½-1½	(4)
3301.95	A	6	26.26	30.12	1½-1½	4s ^2P-4p $^2P^o$ †
3209.34	A	6	26.45	30.29	½- ½	(5)
3364.22	A	6	26.45	30.12	½-1½	
Ca I I P 6.09 Anal A List B Mar 1944						
6572.781	A	50	0.00	1.88	0-1	4^1S-4^3P^o
						(1)
4226.728//	A	500R	0.00	2.92	0-1	4^1S-4^1P^o
						(2)
6162.172	A	150	1.89	3.89	2-1	4^3P^o-5^3S
6122.219	A	100	1.88	3.89	1-1	(3)
6102.722	A	80	1.87	3.89	0-1	
4454.781	A	80	1.89	4.66	2-3	4^3P^o-4^3D
4434.960	A	60r	1.88	4.66	1-2	(4)
4425.441	A	50	1.87	4.66	0-1	
4455.887	A	40	1.89	4.66	2-2	
4435.688	A	40	1.88	4.66	1-1	
4456.612	B	10	1.89	4.66	2-1	
4302.527	A	60r	1.89	4.76	2-2	4^3P^o-4p ^2P
4298.986	A	30	1.88	4.75	1-1	(5)
4318.652	A	45	1.89	4.75	2-1	
4307.741	A	45	1.88	4.74	1-0	
4283.010	A	40	1.88	4.76	1-2	
4289.364	A	40	1.87	4.75	0-1	
3973.707	A	12	1.89	5.00	2-1	4^3P^o-6^3S
3957.053	A	10	1.88	5.00	1-1	(6)
3948.901	A	6	1.87	5.00	0-1	
3933.50	D	(0)	1.88	5.02	1-0	4^3P^o-4p ^2S
						(7)
3761.72	E	(0)	1.88	5.16	1-0	4^3P^o-6^1S
						(8)
3644.410	A	40	1.89	5.28	2-3	4^3P^o-5^3D
3630.748	A	30	1.88	5.28	1-2	(9)
3624.111	A	20	1.87	5.28	0-1	
3644.765	A	15	1.89	5.28	2-2	
3630.974	A	15	1.88	5.28	1-1	
3644.990	B	2	1.89	5.28	2-1	
3487.598	A	12	1.89	5.43	2-1	4^3P^o-7^3S
3474.763	A	8	1.88	5.43	1-1	(10)
3468.476	A	4	1.87	5.43	0-1	
3361.918	A	35n*	1.89	5.56	2-3	4^3P^o-6^3D
3350.209	A	25n*	1.88	5.56	1-2	(11)
3344.513	A	8n	1.87	5.56	0-1	
3362.131	B	35n*	1.89	5.56	2-2	
3350.361	B	25n*	1.88	5.56	1-1	
3362.28	B	(0)	1.89	5.56	2-1	
3286.067	A	4	1.89	5.65	2-1	4^3P^o-8^3S
3274.661	B	2	1.88	5.65	1-1	(12)
3269.090	B	1n	1.87	5.65	0-1	
3225.896	A	8n*	1.89	5.72	2-3	4^3P^o-7^3D
3215.145	B	5n*	1.88	5.72	1-2	(13)
3209.930	B	2n	1.87	5.72	0-1	
3226.129	B	8n*	1.89	5.72	2-2	
3215.334	B	5n*	1.88	5.72	1-1	

Ca I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3180.521	B	1N	1.89	5.77	2-1	$4^3P^o-9^3S$
3169.854	B	1N	1.88	5.77	1-1	(14)
3164.618	B	1N	1.87	5.77	0-1	
3150.738	A	4N*	1.89	5.81	2-3	$4^3P^o-8^3D$
3140.782	B	3N*	1.88	5.81	1-2	(15)
3136.003	B	1N	1.87	5.81	0-1	
3151.280	B	4N*	1.89	5.81	2-2	
3141.164	B	3N*	1.88	5.81	1-1	
3117.656	B	1N	1.89	5.85	2-1	$4^3P^o-10^3S$
3107.388	B	1N	1.88	5.85	1-1	(16)
3102.36	B	(0)	1.87	5.85	0-1	
3006.858	A	6	1.89	6.00	2-2	$4^3P^o-3d^2\ ^3P$
2999.641	A	4	1.88	5.99	1-1	(17)
3009.205	A	5	1.89	5.99	2-1	
3000.863	A	5	1.88	5.99	1-0	
2997.309	B	5	1.88	6.00	1-2	
2994.958	A	5	1.87	5.99	0-1	
6439.073	A	150	2.51	4.43	3-4	$3^3D-3d4p^3F^o$
6462.566	A	125	2.51	4.42	2-3	(18)
6493.780	A	80	2.51	4.41	1-2	
6471.660	A	40	2.51	4.42	3-3	
6499.649	A	30	2.51	4.41	2-2	
6508.742	B	(1)	2.51	4.41	3-2	
6464.70	D	(1)	2.51	4.42	3-2	$3^3D-3d4p^1D^o$
6455.600	A	10	2.51	4.42	2-2	(19)
6449.810	A	50	2.51	4.42	1-2	
6169.559	A	40	2.51	4.52	3-2	$3^3D-5^3P^o$
6169.055	A	25	2.51	4.51	2-1	(20)
6166.443	A	15	2.51	4.51	1-0	
6161.289	A	10	2.51	4.52	2-2	
6163.758	A	10	2.51	4.51	1-1	
6156.10	F	(1)	2.51	4.52	1-2	
5588.757	A	80	2.51	4.72	3-3	$3^3D-3d4p^3D^o$
5594.468	A	60	2.51	4.72	2-2	(21)
5598.487	A	50	2.51	4.71	1-1	
5601.285	A	30	2.51	4.72	3-2	
5602.846	A	25	2.51	4.71	2-1	
5581.971	A	25	2.51	4.72	2-3	
5590.120	A	20	2.51	4.72	1-2	
5270.270	A	60	2.51	4.86	3-2	$3^3D-3d4p^3P^o$
5265.557	A	40	2.51	4.86	2-1	(22)
5262.244	A	25	2.51	4.86	1-0	
5264.239	A	20	2.51	4.86	2-2	
5261.706	A	20	2.51	4.86	1-1	
5260.375	A	2	2.51	4.86	1-2	
4585.871	A	50	2.51	5.21	3-4	$3^3D-4^3F^o$
4581.402	A	40	2.51	5.21	2-3	(23)
4578.558	A	30	2.51	5.21	1-2	
4585.923	B	(2)	2.51	5.21	3-3	
4512.282	A	5	2.51	5.25	3-2	$3^3D-6^3P^o$
4509.446	B	3	2.51	5.25	2-1	(24)
4507.417	B	(1)	2.51	5.25	1-0	
4507.854	B	1	2.51	5.25	2-2	
4506.624	B	(1)	2.51	5.25	1-1	
4505.00	E	(0)	2.51	5.25	1-2	
4098.533	A	15	2.51	5.53	3-4	$3^3D-5^3F^o$
4094.930	A	12	2.51	5.53	2-3	(25)
4092.633	A	8	2.51	5.53	1-2	
3875.807	B	(4)	2.51	5.70	3-	$3^3D-6^3F^o$
3872.552	B	(3)	2.51	5.70	2-	(26)
3870.506	B	(2)	2.51	5.70	1-	
3753.367	B	(1)	2.51	5.80	3-	$3^3D-7^3F^o$
3750.349	B	(1)	2.51	5.80	2-	(27)
3748.374	B	(1)	2.51	5.80	1-	
3678.240	B	3	2.51	5.87	3-	$3^3D-8^3F^o$
3675.307	B	2	2.51	5.87	2-	(28)
3673.448	B	1	2.51	5.87	1-	
7202.194	A	200	2.70	4.41	2-2	$3^1D-3d4p^3F^o$
						(29)
7148.147	A	500	2.70	4.42	2-2	$3^1D-3d4p^1D^o$
						(30)

Ca I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
6798.51	C	6n	2.70	4.51	2-1	$3^1D-5^3P^o$ †
						(31)
6717.685	A	500n	2.70	4.53	2-1	$3^1D-3d4p^1P^o$
						(32)
5349.472	A	25	2.70	5.00	2-3	$3^1D-3d4p^1F^o$
						(33)
5041.620	A	40	2.70	5.15	2-1	$3^1D-5^1P^o$
						(34)
4878.132	A	50	2.70	5.23	2-3	$3^1D-4^1F^o$
						(35)
4526.935	A	30	2.70	5.42	2-1	$3^1D-6^1P^o$
						(36)
4355.096	A	25	2.70	5.53	2-3	$3^1D-5^1F^o$
						(37)
4240.456	A	6	2.70	5.61	2-1	$3^1D-7^1P^o$
						(38)
4108.554	B	10N	2.70	5.70	2-3	$3^1D-6^1F^o$
						(39)
4058.912	B	1n	2.70	5.74	2-1	$3^1D-8^1P^o$
						(40)
3972.570	A	(1)	2.70	5.80	2-3	$3^1D-7^1F^o$
						(41)
3889.141	B	(1)	2.70	5.87	2-3	$3^1D-8^1F^o$
						(42)
10343.85	C	500	2.92	4.11	1-0	$4^1P^o-5^1S$
						(43)
7326.146	A	400	2.92	4.60	1-2	$4^1P^o-4^1D$
						(44)
6709.88	D	(1)	2.92	4.76	1-2	$4^1P^o-4p^2\ ^3P$
						(45)
5867.572	A	1	2.92	5.02	1-0	$4^1P^o-4p^2\ ^1S$
						(46)
5857.454	A	100	2.92	5.03	1-2	$4^1P^o-4p^2\ ^1D$
						(47)
5512.979	A	20n	2.92	5.16	1-0	$4^1P^o-6^1S$
						(48)
5188.848	A	50	2.92	5.30	1-2	$4^1P^o-5^1D$
						(49)
4847.296	A	2	2.92	5.47	1-0	$4^1P^o-7^1S$
						(50)
4685.265	A	12	2.92	5.55	1-2	$4^1P^o-6^1D$
						(51)
12816.06	P	(50d)	3.89	4.86	1-2	$5^3S-3d4p^3P^o$
12823.89	P		3.89	4.86	1-1	(52)
12827.09	P		3.89	4.86	1-0	
6361.79	F	(5n)	4.43	6.37	4-5	$3d4p^3F^o-3d4d^3G$
6343.29	F	(4n)	4.42	6.37	3-4	(53)
6318.11	F	(3n)	4.41	6.36	2-3	
5757.69	F	(4n)	4.43	6.57	4-4	$3d4p^3F^o-3d4d^3F$
5735.74	F	(3n)	4.42	6.57	3-3	(54)
5717.99	F	(4n)	4.41	6.57	2-2	
5761.88	F	(1n)	4.43	6.57	4-3	
5746.81	F	(2N)	4.42	6.57	3-2	
5731.70	F	(1n)	4.42	6.57	3-4	
5707.03	F	(1n)	4.41	6.57	2-3	
9701.81	P	20	4.72	6.00	3-2	$3d4p^3D^o-3d^2\ ^3P$
9688.60	P	15	4.72	5.99	2-1	(55)
9676.25	P	5	4.71	5.99	1-0	
9664.29	P	5p†	4.72	6.00	2-2	
9663.58	P		4.71	5.99	1-1	
9639.40	P		4.71	6.00	1-2	
10838.77	C	10	4.86	6.00	2-2	$3d4p^3P^o-3d^2\ ^3P$
10863.72	C	2	4.86	5.99	1-1	(56)
10869.37	C	3	4.86	5.99	2-1	
10879.78	C	4	4.86	5.99	1-0	
10833.12	C	4	4.86	6.00	1-2	
10861.51	C	3	4.86	5.99	0-1	

Strongest Unclassified Lines of Ca I

7468.41	F	(3)
6405.89	F	(3n)
6395.16	F	(3n)
5764.32	F	(3n)
5743.28	F	(3n)
5688.47	F	(4N)
5682.88	F	(3n)

Ca II I P 11.82 Anal A List B Apr 1944

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3933.664//	A	400R(K)	0.00	3.14	½-1½	$4^2S-4^2P^o$
3968.470	A	350R(H)	0.00	3.11	½- ½	(1)
8542.089	B	1500	1.69	3.14	2½-1½	$3^2D-4^2P^o$
8662.140	B	1000	1.69	3.11	1½- ½	(2)
8498.018	B	300	1.69	3.14	1½-1½	
3736.901	B	12	3.14	6.44	1½- ½	$4^2P^o-5^2S$
3706.026	B	10	3.11	6.44	½- ½	(3)
3179.332	B	15	3.14	7.02	1½-2½	$4^2P^o-4^2D$
3158.869	B	10	3.11	7.02	½-1½	(4)
3181.275	B	4	3.14	7.02	1½-1½	
11836.4	P		6.44	7.48	½-1½	$5^2S-5^2P^o$
11947.0	P		6.44	7.47	½- ½	(5)
4472.09	D	(0)	6.44	9.20	½-1½	$5^2S-6^2P^o$
4479.29	D	(1)	6.44	9.20	½- ½	(6)
4722.58	D	(-)	7.02	9.63	2½-	$4^2D-5^2F^o$
4718.16	D	(-)	7.02	9.63	1½-	(7)
3758.36	E	(8)	7.02	10.30	2½-	$4^2D-6^2F^o$
3755.61	E	(7)	7.02	10.30	1½-	(8)
3346.99	E	(10)	7.02	10.71	2½-	$4^2D-7^2F^o$
						(9)
3125.15	E	(5)	7.02	10.97	2½-	$4^2D-8^2F^o$
3123.29	E	(3)	7.02	10.97	1½-	(10)
2989.42	E	(1)	7.02	11.15	2½-	$4^2D-9^2F^o$
2987.72	E	(1)	7.02	11.15	1½-	(11)
9933.3	P		7.48	8.73	1½- ½	$5^2P^o-6^2S$
9856.7	P		7.47	8.73	½- ½	(12)
8250.2	P		7.48	8.98	1½-2½	$5^2P^o-5^2D$
8203.2	P		7.47	8.98	½-1½	(13)
8256.1	P		7.48	8.98	1½-1½	
5307.30	D	(-)	7.48	9.81	1½- ½	$5^2P^o-7^2S$
5285.34	D	(-)	7.47	9.81	½- ½	(14)
5019.979	B	(2)	7.48	9.94	1½-2½	$5^2P^o-6^2D$
5001.489	C	(1)	7.47	9.94	½-1½	(15)
5021.141	C	(0)	7.48	9.94	1½-1½	
4220.13	D	(-)	7.48	10.41	1½- ½	$5^2P^o-8^2S$
4206.21	D	(-)	7.47	10.41	½- ½	(16)
4109.83	D	(1)	7.48	10.49	1½-2½	$5^2P^o-7^2D$
4097.12	D	(1)	7.47	10.49	½-1½	(17)
4110.33	D	(0)	7.48	10.49	1½-1½	
3694.11	D	(1)	7.48	10.82	1½-2½	$5^2P^o-8^2D$
3683.71	D	(1)	7.47	10.82	½-1½	(18)
3694.31	D	(0)	7.48	10.82	1½-1½	
6456.907	C	(-)	8.40	10.31	—	$4^2F^o-6^2G$
						(19)
5339.29	D	(-)	8.40	10.71	—	$4^2F^o-7^2G$
						(20)

Ca III I P 51.00 Anal D List A Apr 1944

3372.68	A	8	29.94	33.60	2-1	4s 1°-4p 1
						(1)
3537.75	A	7	30.11	33.60	1-1	4s 2°-4p 1
2988.61	A	7	30.11	34.24	1-2	(2) -4p 3
3761.62	A	6	30.32	33.60	0-1	4s 3°-4p 1
3028.66	A	6	30.32	34.40	0-1	(3) -4p 4
4081.74	A	5	30.58	33.60	1-1	4s 4°-4p 1
3367.81	A	51	30.58	34.24	1-2	(4) -4p 3
3233.02	A	4	30.58	34.40	1-1	-4p 4
3119.66	A	8	30.58	34.53	1-2	-4p 5
2989.30	A	6	30.58	34.71	1-1	-4p 7

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Sc I I P 6.7 Anal A List C Nov 1940						
6362.386	A	(2)	0.02	1.96	2½-3½	$a^2D-z^4F^o$ (1)
6344.831	A	5	0.00	1.95	1½-2½	
6413.353	A	50	0.02	1.95	2½-2½	
6378.824	A	40	0.00	1.93	1½-1½	
8448.10	B	1	0.02	1.93	2½-1½	
6305.671	A	400	0.02	1.98	2½-2½	$a^2D-z^2D^o$ (2)
8210.678	A	200	0.00	1.99	1½-1½	
6276.310	A	15	0.02	1.99	2½-1½	
6239.410	A	20	0.00	1.98	1½-2½	
8231.76	C	(2)	0.02	2.00	2½-3½	$a^2D-z^4D^o$ (3)
*8193.672	A	(2)	0.00	1.99	1½-2½	
6258.962	A	100	0.02	1.99	2½-2½	
6239.778	A	100	0.00	1.98	1½-1½	
6308.047	A	20	0.02	1.98	2½-1½	
6244.51	C	(1)	0.00	1.98	1½- ½	
5349.702	A	15	0.02	2.33	2½-1½	$a^2D-z^2P^o$ (4)
5342.961	A	10	0.00	2.31	1½- ½	
5301.938	A	2	0.00	2.33	1½-1½	
4779.347	A	20	0.02	2.60	2½-3½	$a^2D-z^2F^o$ (5)
4753.152	A	15	0.00	2.60	1½-2½	
4791.500	A	4	0.02	2.60	2½-2½	
4082.396	A	40	0.02	3.04	2½-1½	$a^2D-y^2P^o$ (6)
*4054.555	A	35	0.00	3.04	(1½-1½, 1½- ½)	
4023.688	A	100	0.02	3.09	2½-2½	$a^2D-y^2D^o$ (7)
4020.399	A	75	0.00	3.07	1½-1½	
4047.792	A	25	0.02	3.07	2½-1½	
3996.607	A	30	0.00	3.09	1½-2½	
3911.810	A	100	0.02	3.18	2½-3½	$a^2D-y^2F^o$ (8)
3907.476	A	75	0.00	3.16	1½-2½	
3933.381	A	20	0.02	3.16	2½-2½	
3273.619	A	20	0.02	3.79	2½-1½	$a^2D-x^2P^o$ (9)
3269.904	A	15	0.00	3.77	1½- ½	
3255.678	A	6	0.00	3.79	1½-1½	
3019.350	A	10	0.02	4.11	2½-3½	$a^2D-x^2F^o$ (10)
3015.364	A	8	0.00	4.09	1½-2½	
3030.769	A	3	0.02	4.09	2½-2½	
2980.752	A	(6)	0.02	4.16	2½-3½	$a^2D-x^2D^o$ (11)
2974.008	A	(5)	0.00	4.15	1½-1½	
*2988.952§	A	(10)	0.02	4.15	2½-1½	
2965.86	B	(2)	0.00	4.16	1½-2½	
5671.805//	A	200	1.44	3.62	4½-5½	$a^4F-z^4G^o$ (12)
5686.826	A	150	1.43	3.60	3½-4½	
5700.14	B	100	1.43	3.59	2½-3½	
5711.754	A	100	1.42	3.58	1½-2½	
5708.600	A	15	1.44	3.60	4½-4½	
5717.30	B	15	1.43	3.59	3½-3½	
5724.073	A	15	1.43	3.58	2½-2½	
5739.30	B	2	1.44	3.59	4½-3½	
5741.38	B	1	1.43	3.58	3½-2½	
5081.554	A	125	1.44	3.87	4½-4½	$a^4F-y^4F^o$ (13)
5083.713	A	80	1.43	3.86	3½-3½	
5085.547	A	40	1.43	3.85	2½-2½	
5086.951	A	40	1.42	3.85	1½-1½	
5101.121	A	20	1.44	3.86	4½-3½	
*5099.228	A	40	1.43	3.85	3½-2½	
5098.718	A	30	1.43	3.85	2½-1½	
5064.321	A	10	1.43	3.87	3½-4½	
5070.249	A	40	1.43	3.86	2½-3½	
5075.814	A	10	1.42	3.85	1½-2½	
4743.814	A	40	1.44	4.04	4½-3½	$a^4F-y^4D^o$ (14)
4741.018	A	30	1.43	4.04	3½-2½	
4737.642	A	20	1.43	4.03	2½-1½	
4734.094	A	15	1.42	4.03	1½- ½	
4738.769	A	5	1.43	4.04	3½-3½	
*4739.226	A	30	1.43	4.04	2½-2½	
4717.031	A	(1)	1.43	4.03	1½-1½	
4730.830	A	(0)	1.42	4.04	1½-2½	
5520.496	A	100	1.86	4.09	3½-4½	$a^2F-z^2G^o$ (15)
5514.315	A	80	1.84	4.08	2½-3½	
5549.68	B	(3)	1.86	4.08	3½-3½	
5481.989	A	100	1.86	4.11	3½-3½	$a^2F-x^2F^o$ † (16)
5484.818	A	80	1.84	4.09	2½-2½	
5356.100	A	60	1.86	4.16	3½-2½	$a^2F-x^2D^o$ † (17)
5349.294	A	50	1.84	4.15	2½-1½	
5591.322	A	15	1.98	4.19	4½-4½	$z^4F^o-e^4F$ † (18)
5564.861	A	4	1.98	4.18	3½-3½	
5541.030	A	3	1.95	4.17	2½-2½	
5538.06	B	(4)	1.93	4.17	1½-1½	
5392.075	A	30	1.98	4.27	4½-3½	$z^4F^o-e^4D$ † (19)
5375.346	A	20	1.98	4.28	3½-2½	
5355.752	A	8	1.95	4.25	2½-1½	
5341.040	A	8	1.93	4.25	1½- ½	
4185.184	A	12	1.98	4.94	4½-5½	$z^4F^o-s^4G$ † (20)
4152.355	A	12	1.96	4.93	3½-4½	
4140.304	A	10	1.95	4.93	2½-3½	
4133.008	A	8	1.93	4.92	1½-2½	
3435.555	A	5	1.98	5.57	4½-4½	$z^4F^o-h^4F$ (21)
3431.358	A	3	1.96	5.56	3½-3½	
3429.208	A	3	1.95	5.54	2½-2½	
3429.483	A	3	1.93	5.53	1½-1½	
3448.503	A	1	1.98	5.56	4½-3½	
3443.989	A	1	1.96	5.54	3½-2½	
3439.40	A	1	1.95	5.53	2½-1½	
3418.528	A	(2)	1.96	5.57	3½-4½	
3418.674	A	2	1.95	5.56	2½-3½	
3419.358	A	(1)	1.93	5.54	1½-2½	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Sc I continued						
4709.336	A	5	2.29	4.91	2½-3½	$z^4P^o-f^4D$ † (22)
4706.967	A	(3)	2.29	4.91	1½-2½	
4711.732	A	(1)	2.28	4.90	½-1½	
5258.333	A	15	2.50	4.85	4½-5½	$a^2G-z^2H^o$ † (23)
5285.752	A	10	2.50	4.83	3½-4½	
6557.87	B	15*	(2.60	4.48	3½-2½	$z^2F^o-f^2D$ (24)
6558.05	B		2.60	4.48	2½-1½)	
Strongest Unclassified Lines of Sc I						
6835.03	B	(25)				
6817.08	A	(10)				
6737.87	A	(10)				
6036.17	B	(10nl)				
4573.993	A	6	III			
4557.237	A	5	III			
Sc II I P 12.8 Anal A List A Nov 1940						
3859.36	P		0.02	3.22	3-2	$a^3D-z^1D^o$ (1)
3843.000	A	4	0.01	3.22	2-2	
3833.059	A	3	0.00	3.22	1-2	
3613.836//	A	60	0.02	3.44	3-4	$a^3D-z^3F^o$ (2)
3630.740	A	50	0.01	3.41	2-3	
3642.785	A	40	0.00	3.39	1-2	
3645.311	A	30	0.02	3.41	3-3	
3651.798	A	25	0.01	3.39	2-2	
3666.537	A	3	0.02	3.39	3-2	
3572.523	A	50	0.02	3.48	3-3	$a^3D-z^3D^o$ (3)
3576.340	A	35	0.01	3.46	2-2	
3580.927	A	30	0.00	3.45	1-1	
3590.475	A	20	0.02	3.46	3-2	
3589.635	A	20	0.01	3.45	2-1	
3558.538	A	20	0.01	3.48	2-3	
3567.701	A	20	0.00	3.46	1-2	
3372.151	A	20	0.02	3.68	3-2	$a^3D-z^3P^o$ (4)
3368.946	A	15	0.01	3.67	2-1	
3381.935	A	12	0.00	3.67	1-0	
3359.679	A	10	0.01	3.68	2-2	
3361.270	A	10	0.00	3.67	1-1	
3352.048	A	3	0.00	3.68	1-2	
3251.32	A	3	0.01	3.80	2-1	$a^3D-z^1P^o$ (5)
3244.17	P		0.00	3.80	1-1	
3107.387	A	(1)	0.02	3.99	3-3	$a^3D-z^1F^o$ (6)
3096.77	P		0.01	3.99	2-3	
4246.829	A	100	0.31	3.22	2-2	$a^1D-z^1D^o$ (7)
3989.06	B	2	0.31	3.41	2-3	$a^1D-z^3F^o$ (8)
4014.489	A	5	0.31	3.39	2-2	
3902.09	P		0.31	3.48	2-3	$a^1D-z^3D^o$ (9)
3923.503	A		0.31	3.46	2-2	
3939.51	P		0.31	3.45	2-1	
3664.254	A	1	0.31	3.68	2-2	$a^1D-z^3P^o$ (10)
3875.265	A	1	0.31	3.67	2-1	
3535.729	A	10	0.31	3.80	2-1	$a^1D-z^1P^o$ (11)
3353.734	A	25	0.31	3.99	2-3	$a^1D-z^1F^o$ (12)
4716.13	P		0.60	3.22	3-2	$a^3F-z^1D^o$ (13)
4698.276	A	(2)	0.59	3.22	2-2	
4374.455	A	40	0.62	3.44	4-4	$a^3F-z^3F^o$ (14)
4400.355	A	30	0.60	3.41	3-3	
4415.559	A	20	0.59	3.39	2-2	
4420.665	A	2	0.62	3.41	4-3	
4431.369	A	3	0.60	3.39	3-2	
4354.609	A	5	0.60	3.44	3-4	
4384.813	A	6	0.59	3.41	2-3	
4314.084	A	60	0.62	3.48	4-3	$a^3F-z^3D^o$ (15)
4320.745	A	50	0.60	3.46	3-2	
4325.010	A	40	0.59	3.45	2-1	
4294.767	A	8	0.60	3.48	3-3	
4305.715	A	10	0.59	3.46	2-2	
4279.927	A	1	0.59	3.48	2-3	
4008.41	P		0.60	3.68	3-2	$a^3F-z^3P^o$ (16)
4008.60	P		0.59	3.67	2-1	
3995.49	P		0.59	3.68	2-2	
3843.16	P		0.59	3.80	2-1	$a^3F-z^1P^o$ (17)
3653.62	P		0.62	3.99	4-3	$a^3F-z^1F^o$ (18)
3639.76	P		0.60	3.99	3-3	
3629.10	P		0.59	3.99	2-3	
6604.60	B	10	1.35	3.22	2-2	$b^1D-z^1D^o$ (19)
6001.53	P		1.35	3.41	2-3	$b^1D-z^3F^o$ (20)
6059.25	P		1.35	3.39	2-2	
5806.77	P		1.35	3.48	2-3	$b^1D-z^3D^o$ (21)
5854.31	P		1.35	3.48	2-2	
5890.02	P		1.35	3.45	2-1	
5295.30	P		1.35	3.68	2-2	$b^1D-z^3P^o$ (22)
5318.337	A	3	1.35	3.67	2-1	
5031.019	A	40	1.35	3.80	2-1	$b^1D-z^1P^o$ (23)
4670.404	A	15	1.35	3.99	2-3	$b^1D-z^1F^o$ (24)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Sc II continued						
5552.25	B	3	1.45	3.67	0-1	$a^1S-z^3P^o$ (25)
5239.823	A	15	1.45	3.80	0-1	$a^1S-z^1P^o$ (26)
7178.33	P		1.50	3.22	2-2	$a^3P-z^1D^o$ (27)
7151.18	P		1.49	3.22	1-2	
6245.629	A	20	1.50	3.48	2-3	$a^3P-z^3D^o$ (28)
6279.757	A	15	1.49	3.46	1-2	
6309.902	A	15	1.49	3.45	0-1	
6300.697	A	6	1.50	3.46	2-2	
6320.854	A	7	1.49	3.45	1-1	
6342.082	A	1	1.50	3.45	2-1	
5657.870	A	25	1.50	3.68	2-2	$a^3P-z^3P^o$ (29)
5667.164	A	10	1.49	3.67	1-1	
5684.190	A	15	1.50	3.67	2-1	
5669.030	A	12	1.49	3.67	1-0	
5640.971	A	15	1.49	3.68	1-2	
5658.334	A	8	1.49	3.67	0-1	
5357.195	A	2	1.50	3.80	2-1	$a^3P-z^1P^o$ (30)
5342.05	P		1.49	3.80	1-1	
5334.228	A	2	1.49	3.80	0-1	
5526.809	A	75	1.76	3.99	4-3	$a^1G-z^1F^o$ (31)
3157.44	P		3.22	7.13	2-3	$z^1D^o-e^3D$ (32)
3170.40	B	1	3.22	7.11	2-2	
3176.70	P		3.22	7.10	2-1	
3107.529	A	6	3.22	7.19	2-2	$z^1D^o-e^1D$ (33)
*2988.952§	A	10	3.22	7.35	2-3	$z^1D^o-e^1F$ (34)
3343.27	A	4	3.44	7.13	4-3	$z^3F^o-e^3D$ (35)
3331.07	A	3	3.41	7.11	3-2	
3320.422	A	3	3.39	7.10	2-1	
3316.79	B	1?	3.41	7.13	3-3	
3313.539	A	0?	3.39	7.11	2-2	
3299.41	P		3.39	7.13	2-3	
3108.511	A	3	3.44	7.41	4-3	$z^3F^o-f^3D$ (36)
3092.519	A	2	3.41	7.40	3-2	
3082.56	A	2	3.39	7.39	2-1	
3065.106	A	30	3.44	7.46	4-5	$z^3F^o-e^3G$ (37)
3052.929	A	20	3.41	7.45	3-4	
3045.714	A	15	3.39	7.44	2-3	
3075.38	B	3	3.44	7.45	4-4	
3060.531	A	3	3.41	7.44	3-3	
3083.07	P		3.44	7.44	4-3	
3379.397	A	3	3.48	7.13	3-3	$z^3D^o-e^3D$ (38)
3378.209	A	2	3.46	7.11	2-2	
3373.57	B	1?	3.45	7.10	1-1	
3394.29	B	1	3.48	7.11	3-2	
3363.501	A	1	3.46	7.13	2-3	
3366.46	B	1	3.45	7.11	1-2	
3139.729	A	10	3.48	7.41	3-3	$z^3D^o-f^3D$ (39)
3133.096	A	8	3.46	7.40	2-2	
3128.286	A	5	3.45	7.39	1-1	
3146.91	B	1	3.48	7.40	3-2	
3138.46	B	1	3.46	7.39	2-1	
3126.02	B	1	3.46	7.41	2-3	
3122.954	A	3	3.45	7.40	1-2	
3580.71	P		3.68	7.13	2-3	$z^3P^o-e^3D$ (40)
3586.83	P		3.67	7.11	1-2	
3594.13	P		3.67	7.10	0-1	
3597.39	P		3.68	7.11	2-2	
3594.89	P		3.67	7.10	1-1	
3605.50	P		3.68	7.10	2-1	
3312.736	A	5	3.68	7.41	2-3	$z^3P^o-f^3D$ (41)
3311.708	A	3	3.67	7.40	1-2	
3317.038	A	1	3.67	7.39	0-1	
3320.709	A	1	3.68	7.40	2-2	
3317.693	A	1	3.67	7.39	1-1	
3326.74	P		3.68	7.39	2-1	
3199.37	A	10	3.68	7.54	2-1	$z^3P^o-e^3S$ (42)
3191.005	A	5	3.67	7.54	1-1	
3190.403	A	2	3.67	7.54	0-1	
3379.18	A	2	3.80	7.46	1-1	$z^1P^o-e^1P$ (43)
2979.683	A	5	3.80	7.95	1-2	$z^1P^o-f^1D$ (44)
3678.342	A	2	3.99	7.35	3-3	$z^1F^o-e^1F$ (45)
3122.542	A	1	3.99	7.95	3-2	$z^1F^o-f^1D$ (46)
3039.92	A	10	3.99	8.05	3-4	$z^1F^o-e^1G$ (47)
4748.12	P		4.86	7.46	2-1	$y^3P^o-e^1P$ (48)
4696.71	P		4.83	7.46	1-1	
4671.94	P		4.81	7.46	0-1	
3995.48	P		4.86	7.95	2-2	$y^3P^o-f^1D$ (49)
3959.01	P		4.83	7.95	1-2	
Sc III I P 24.65 Anal C List A Jan 1941						
4068.7	A	(2n)	13.86	16.90	2½-3½	$4^2D-4^2F^o$ (1)
4061.3	A	(2n)	13.86	16.90	1½-2½	

Ti I I P 6.81 Anal A List B Nov 1940

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
•6295.251	E	(2)	0.05	2.01	4-5	$a^3F-z^5G^\circ$
6273.389	E	(6)	0.02	1.99	3-4	(1)
6257.72	H	(2)	0.00	1.97	2-3	
6359.896	E	(8)	0.05	1.99	4-4	
8325.22	H	(10)	0.02	1.97	3-3	
8296.646	E	(12)	0.00	1.96	2-2	
8413.13	P		0.05	1.97	4-3	
6364.92	H	(2)	0.02	1.96	3-2	
5940.68	E	-	0.05	2.13	4-5	$a^3F-z^5F^\circ$
5913.730	E	-	0.02	2.11	3-4	(2)
6031.68	E	-	0.05	2.09	4-3	
5984.586	E	(1)	0.02	2.08	3-2	
5944.65	P		0.00	2.08	2-1	
5460.502	B	4	0.05	2.31	4-4	$a^3F-z^5D^\circ$
5436.256	B	3	0.02	2.30	3-3	(3)
•5396.600	E	1	0.00	2.29	2-2	
5490.840	B	(0)	0.05	2.30	4-3	
•5446.593	B	2	0.02	2.29	3-2	
5408.940	E	(1)	0.02	2.28	2-1	
•5396.600	E	1	0.02	2.31	3-4	
5376.59	P		0.00	2.30	2-3	
5210.386	A	40	0.05	2.42	4-4	$a^3F-z^3F^\circ$
5192.971	A	35	0.02	2.40	3-3	(4)
5173.742	A	30	0.00	2.39	2-2	
5252.105	B	8	0.05	2.40	4-3	
5219.697	B	8	0.02	2.39	3-2	
5152.185	B	10	0.02	2.42	3-4	
5147.483	A	10	0.00	2.40	2-3	
5064.654	A	25	0.05	2.48	4-3	$a^3F-z^3D^\circ$
5039.959	A	22	0.02	2.47	3-2	(5)
5014.185	A	(25)	0.00	2.46	2-1	
5009.652	A	7	0.02	2.48	3-3	
4997.099	A	8	0.00	2.47	2-2	
4967.30	H	(1)	0.00	2.48	2-3	
4681.908	A	30	0.05	2.68	4-5	$a^3F-z^3G^\circ$
4667.585	A	25	0.02	2.67	3-4	(6)
4656.468	A	25	0.00	2.65	2-3	
4715.295	A	4	0.05	2.67	4-4	
4693.670	B	5	0.02	2.65	3-3	
4562.637	B	6	0.02	2.73	3-2	$a^3F-z^1D^\circ$
4527.455	E	(4)	0.00	2.73	2-2	(7)
4540.483	E	1	0.05	2.77	4-3	$a^3F-z^1F^\circ$
4496.245	E	2	0.02	2.77	3-3	(8)
4462.099	B	(3)	0.00	2.77	2-3	
4113.708	A	20	0.05	3.05	4-4	$a^3F-z^1G^\circ$
4076.370	B	4	0.02	3.05	3-4	(9)
4011.534	E	(3)	0.00	3.08	2-1	$a^3F-z^3S^\circ$ (10)
4009.653	B	15	0.02	3.10	3-2	$a^3F-z^3S^\circ$
3982.478	B	30	0.00	3.10	2-2	(11)
3998.635	A	100R	0.05	3.13	4-4	$a^3F-y^3F^\circ$
3989.758	A	80r	0.02	3.11	3-3	(12)
3981.761	A	70r	0.00	3.10	2-2	
4024.573	A	35	0.05	3.11	4-3	
4008.928	A	35	0.02	3.10	3-2	
3984.269	A	35	0.02	3.13	3-4	
3982.851	A	35	0.00	3.11	2-3	
3958.206	A	80	0.05	3.17	4-3	$a^3F-y^3D^\circ$
3958.336	A	60	0.02	3.14	3-2	(13)
3948.870	A	60	0.00	3.13	2-1	
3924.527	A	50	0.02	3.17	3-3	
3929.875	A	40	0.00	3.14	2-2	
3898.487	B	8	0.00	3.17	2-3	
3947.770	A	40	0.02	3.15	3-2	$a^3F-z^3P^\circ$
3914.751	B	5	0.00	3.15	2-1	(14)
3921.423	A	30	0.00	3.15	2-2	
3914.334	A	35	0.05	3.20	4-4	$a^3F-y^5D^\circ$
3900.958	B	12	0.02	3.18	3-3	(15)
3889.948	B	6	0.00	3.17	2-2	
3934.228	B	9	0.05	3.18	4-3	
3915.879	B	3	0.02	3.17	3-2	
•3899.668	B	(2)	0.00	3.18	2-1	
3881.399	E	4	0.02	3.20	3-4	
•3875.262	A	20n	0.00	3.18	2-3	
3788.804	E	2	0.05	3.31	4-5	$a^3F-y^5G^\circ$
3774.331	E	1n	0.02	3.29	3-4	(18)
3752.860	A	80r	0.05	3.34	4-4	$a^3F-x^3F^\circ$
3741.059	A	60r	0.02	3.32	3-3	(17)
3729.808	A	50r	0.00	3.31	2-2	
3771.852	A	25	0.05	3.32	4-3	
3753.823	B	25	0.02	3.31	3-2	
3732.568	A	15†	0.02	3.34	3-4	
3717.393	A	20	0.00	3.32	2-3	
3689.918	A	15	0.05	3.39	4-3	$a^3F-x^3D^\circ$
3668.985	A	15	0.02	3.38	3-2	(18)
3854.592	A	15	0.00	3.38	2-1	
3860.831	A	12	0.02	3.39	3-3	
3848.198	A	12	0.00	3.38	2-2	
3837.968	E	10	0.00	3.39	2-3	
3853.497	A	100r	0.05	3.43	4-5	$a^3F-y^3G^\circ$
3842.875	A	80r	0.02	3.41	3-4	(19)
3835.482	A	80r	0.00	3.39	2-3	
3671.872	A	20	0.05	3.41	4-4	
3658.097	A	20	0.02	3.39	3-3	
3687.354	E	5	0.05	3.39	4-3	
3635.202	E	8	0.05	3.44	4-3	$a^3F-z^5P^\circ$
3628.085	E	4	0.02	3.42	3-2	(20)
3606.788	E	4	0.02	3.44	3-3	
3603.845	E	2	0.00	3.42	2-2	
3604.284	E	8	0.02	3.45	3-2	$a^3F-y^1D^\circ$ (21)

Ti I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3506.643	E	8	0.05	3.57	4-5	$a^3F-y^5F^\circ$
3493.280	E	4	0.02	3.55	3-4	(22)
3483.010	E	(1)	0.00	3.54	2-3	
3519.939	E	1	0.05	3.55	4-4	
3503.760	E	1	0.02	3.54	3-3	
3490.765	E	1	0.00	3.54	2-2	
3530.580	E	1	0.05	3.54	4-3	
3511.628	E	3	0.02	3.54	3-2	
3495.960	E	2	0.00	3.53	2-1	
3385.944	A	40r	0.05	3.69	4-3	$a^3F-w^3D^\circ$
3377.577	A	30r	0.02	3.67	3-2	(23)
3370.436	A	40r	0.00	3.66	2-1	
3361.263	E	40r	0.02	3.69	3-3	
3358.271	A	10	0.00	3.67	2-2	
3342.151	E	6	0.00	3.69	2-3	
3371.447	A	80R	0.05	3.71	4-5	$a^3F-x^3G^\circ$
3354.834	A	60r	0.02	3.70	3-4	(24)
•3341.875§	A	50r	0.00	3.69	2-3	
3379.216	E	15	0.05	3.70	4-4	
3360.990	E	10	0.02	3.69	3-3	
3385.664	E	12	0.05	3.89	4-3	
3369.054	E	1	0.05	3.71	4-4	$a^3F-x^5D^\circ$
3352.937	E	6	0.02	3.70	3-3	(25)
3342.707	E	2	0.00	3.69	2-2	
3377.485	E	20	0.05	3.70	4-3	
3361.835	E	10	0.02	3.89	3-2	
3348.535	E	5	0.00	3.89	2-1	
3344.62	P		0.02	3.71	3-4	
3333.912	E	2	0.00	3.70	2-3	
3243.803	E	4	0.05	3.85	4-3	$a^3F-v^3D^\circ$
3222.741	E	3	0.02	3.85	3-2	(26)
3205.848	E	5	0.00	3.85	2-1	
3231.151	E	2	0.02	3.85	3-3	
3205.168	E	2	0.00	3.85	2-2	
3203.58	G	(2)	0.00	3.85	2-3	
3199.915	A	100R	0.05	3.90	4-5	$a^3F-w^3G^\circ$
3191.994	A	80R	0.02	3.89	3-4	(27)
3186.451	A	60r	0.00	3.87	2-3	
3214.240	A	12	0.05	3.89	4-4	
3203.828	E	15	0.02	3.87	3-3	
3226.240	E	1	0.05	3.87	4-3	
3160.09	G	tr	0.02	3.93	3-2	$a^3F-y^3P^\circ$
3151.11	G	tr	0.00	3.92	2-1	(28)
3143.16	P		0.00	3.93	2-2	
3000.868	E	20	0.05	4.16	4-4	$a^3F-w^3F^\circ$
2983.308	E	20	0.02	4.18	3-3	(29)
2970.384	E	10	0.00	4.15	2-2	
•3002.738	E	3	0.05	4.18	4-3	
2985.477	E	3	0.02	4.15	3-2	
2981.448	E	(2)	0.02	4.18	3-4	
2968.231	E	4	0.00	4.18	2-3	
2956.133	A	70R	0.05	4.22	4-4	$a^3F-v^3F^\circ$ †
2987.225	E	25	0.05	4.21	4-3	(30)
2956.797	E	25	0.02	4.19	3-2	
10398.85	C	25	0.84	2.03	5-6	$a^5F-z^5G^\circ$
10498.14	C	30	0.83	2.01	4-5	(31)
10584.66	C	25	0.82	1.99	3-4	
10881.81	C	20	0.81	1.97	2-3	
10738.33	O	18	0.81	1.98	1-2	
10807.78	C	10	0.84	2.01	5-5	
10677.04	C	10	0.83	1.99	4-4	
10732.89	C	8	0.82	1.97	3-3	
•10774.92	C	12	0.81	1.96	2-2	
10792.59	P		0.84	1.99	5-4	
10828.04	C	1	0.83	1.97	4-3	
10847.72	C	1	0.82	1.96	3-2	
9838.28	D	100	0.84	2.13	5-5	$a^5F-z^5F^\circ$
9675.55	D	90	0.83	2.11	4-4	(32)
9705.64	D	80	0.82	2.09	3-3	
9728.36	D	60	0.81	2.08	2-2	
9743.60	D	50	0.81	2.08	1-1	
9770.28	D	40	0.84	2.11	5-4	
9783.30	D	40	0.83	2.09	4-3	
9787.87	D	50	0.82	2.08	3-2	
9783.59	D	20	0.81	2.08	2-1	
9546.07	D	50	0.83	2.13	4-5	
9599.53	D	50	0.82	2.11	3-4	
9847.40	D	50	0.81	2.09	2-3	
9888.88	D	30	0.81	2.08	1-2	
8434.98	D	300	0.84	2.31	5-4	$a^5F-z^5D^\circ$
8435.68	D	300	0.83	2.30	4-3	(33)
8426.50	D	200	0.82	2.29	3-2	
8412.38	D	150	0.81	2.28	2-1	
8396.93	D	90	0.81	2.28	1-0	
8384.24	E	(2)	0.83	2.31	4-4	
8377.90	D	100	0.82	2.30	3-3	
8382.54	D	100	0.81	2.29	2-2	
8382.82	D	90	0.81	2.28	1-1	
8307.41	E	(1)	0.82	2.31	3-4	
8334.37	E	(2)	0.81	2.30	2-3	
8353.15	E	(2)	0.81	2.29	1-2	
7852.74	P		0.84	2.42	5-4	$a^5F-z^3F^\circ$
7885.00	P		0.83	2.40	4-3	(34)
7895.50	P		0.82	2.39	3-2	
5361.724	E	(1)	0.83	3.13	4-4	$a^5F-y^3F^\circ$
5384.834	E	(1)	0.82	3.11	3-3	(35)
5401.32	H	(1)	0.81	3.10	2-2	
5338.328	E	1	0.82	3.13	3-4	
5366.851	B	2	0.81	3.11	2-3	
5389.180	B	2	0.81	3.10	1-2	
5289.28	E	(1)	0.83	3.17	4-3	$a^5F-y^3D^\circ$
5323.958	E	(1)	0.82	3.14	3-2	(38)
5340.68	H	(1)	0.81	3.13	2-1	
5266.49	P		0.82	3.17	3-3	

Ti I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
•5238.560	B	8	0.84	3.20	5-4	$a^5F-y^5D^\circ$
5246.574	E	3	0.83	3.18	4-3	(37)
5250.95	E	2	0.82	3.17	3-2	
5251.49	E	(0)	0.81	3.16	2-1	
•5248.402	E	(1)	0.81	3.16	1-0	
5211.22	P	(1)	0.83	3.20	4-4	
5224.14	P	(0)	0.82	3.18	3-3	
5233.817	E	(1)	0.81	3.17	2-2	
5239.942	E	(0)	0.81	3.16	1-1	
4981.732//	A	60	0.84	3.32	5-6	$a^5F-y^5G^\circ$
4991.067	A	50	0.83	3.31	4-5	(38)
4999.504	A	45	0.82	3.29	3-4	
5007.209	A	40	0.81	3.28	2-3	
5014.377	A	(25)	0.81	3.27	1-2	
5016.162	A	20	0.84	3.31	5-5	
5030.028	A	25	0.83	3.29	4-4	
5022.871	A	25	0.82	3.28	3-3	
5024.842	A	20	0.81	3.27	2-2	
5045.400	B	5	0.84	3.29	5-4	
5043.578	B	7	0.83	3.28	4-3	
5040.842	B	6	0.82	3.27	3-2	
4953.37	P		0.84	3.34	5-4	$a^5F-x^3F^\circ$
4928.895	E	(0)	0.83	3.34	4-4	(39)
4941.322	E	(1)	0.82	3.32	3-3	
4947.994	E	1	0.81	3.31	2-2	
4909.105	B	2	0.82	3.34	3-4	
4928.148	B	4	0.81	3.32	2-3	
4937.719	B	4	0.81	3.31	1-2	
4801.93	P		0.82	3.39	3-3	$a^5F-x^3D^\circ$
4801.90	P		0.81	3.38	2-2	(40)
4806.75	P		0.81	3.38	1-1	
4787.64	P		0.81	3.39	2-3	
4792.24	P		0.81	3.38	1-2	
4818.47	P		0.81	3.38	2-1	
4781.718	B	8	0.84	3.43	5-5	$a^5F-y^3G^\circ$
4789.803	E	(1)	0.83	3.41	4-4	(41)
4812.906	E	(0)	0.84	3.41	5-4	
4758.913	B	4	0.83	3.43	4-5	
4771.103	B	3	0.82	3.41	3-4	
4783.306	E	(2)	0.81	3.39	2-3	
4533.238	A	80	0.84	3.57	5-5	$a^5F-y^5F^\circ$
4534.782	B	60	0.83	3.55	4-4	(42)
4535.574	B	50	0.82	3.54	3-3	
4535.920	B	40	0.81	3.54	2-2	
4538.051	B	40	0.81	3.53	1-1	
4555.486	A	30	0.84	3.55	5-4	
4552.453	A	35	0.83	3.54	4-3	
4548.764	A	35	0.82	3.54	3-2	
4544.688	A	30	0.81	3.53	2-1	
4512.734	A	40	0.83	3.57	4-5	
4518.022	A	50	0.82	3.55	3-4	
4522.798	A	40	0.81	3.54	2-3	
4527.305	A	35	0.81	3.54	1-2	
4314.801	A	25•	0.83	3.89	4-3	$a^5F-w^3D^\circ$
4326.359	B	9	0.82	3.67	3-2	(43)
4334.840	B	2	0.81	3.66	2-1	
4299.838	B	15	0.82	3.69	3-3	
4314.74	P	25•	0.81	3.87	2-2	
4328.988	B	2	0.81	3.86	1-1	
•4288.181	B	3	0.81	3.89	2-3	
4308.945	E	1	0.81	3.87	1-2	
4305.910	A	60	0.84	3.71	5-4	$a^5F-x^5D^\circ$
4301.089	B	50	0.83	3.70	4-3	(44)
4300.566	B	50	0.82	3.89	3-2	
4298.664	A	40	0.81	3.69	2-1	
4295.751	A	22	0.81	3.68	1-0	
4287.405	A	22	0.83	3.71	4-4	
4288.008	A	25	0.82	3.70	3-3	
4289.068	A	25	0.81	3.69	2-2	
4290.933	B	22	0.81	3.89	1-1	
4272.440	B	8	0.82	3.71	3-4	
•4274.584	A	15	0.81	3.70	2-3	
4281.371	A	10	0.81	3.89	1-2	
•4291.214	B	5n	0.83	3.71	4-5	$a^5F-x^3G^\circ$
4268.78	P		0.82	3.70	3-4	(45)
4287.71	P		0.81	3.69	2-3	
4314.358	B	5	0.83	3.89	4-3	
4299.17	P		0.82	3.89	3-3	
3457.494	E	4	0.84	4.41	5-4	$a^5F-w^5D^\circ$
3458.020	E	3	0.83	4.40	4-3	(46)
3457.298	E	2	0.82	4.39	3-2	
3455.755	E	1	0.81	4.39	2-1	
3453.854	E	tr	0.81	4.38	1-0	
3445.568	E	1	0.83	4.41	4-4	
3448.255	E	1	0.82	4.40	3-3	
3449.874	E	2	0.81	4.39	2-2	
3450.735	E	1	0.81	4.39	1-1	
3444.899	E	tr	0.81	4.39	1-2	
3240.84	P		0.84	4.85	5-5	$a^5F-v^3G^\circ$
3235.95	P		0.82	4.64	3-3	(47)
3244.53	P		0.83	4.64	4-3	
8743.124	A	10	0.90	2.73	2-2	$a^1D-z^1D^\circ$ (48)
8599.112	E	12	0.90	2.77	2-3	$a^1D-z^1F^\circ$ (49)
5859.104	E	(3)	0.90	3.08	2-1	$a^1D-z^3S^\circ$ (50)
5438.703	B	1	0.90	3.17	2-3	$a^1D-y^3D^\circ$
5497.92	P		0.90	3.14	2-2	(51)
4943.074	E	(0)	0.90	3.39	2-3	$a^1D-x^3D^\circ$
4958.26	P	2	0.90	3.38	2-2	(52)
4840.874	A	25	0.90	3.45	2-2	$a^1D-y^1D^\circ$ (53)
4412.438	B	1	0.90	3.89	2-3	$a^1D-w^3D^\circ$ (54)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ti I continued						
*4174.088§	B	(1)	0.90	3.85	2-3	$a^1D-v^3D^\circ$ (55)
3904.785	A	40n	0.90	4.06	2-3	$a^1D-y^1F^\circ$ (56)
3786.043	A	20	0.90	4.16	2-1	$a^1D-z^1P^\circ$ (57)
3810.154	A	12	0.90	4.31	2-1	$a^1D-y^1P^\circ$ (58)
3598.714	A	15	0.90	4.33	2-2	$a^1D-x^1D^\circ$ (59)
3324.61	G	1	0.90	4.61	2-2	$a^1D-w^3P^\circ$
*3341.554	E	1	0.90	4.59	2-1	(60)
3299.413	E	10	0.90	4.64	2-3	$a^1D-v^3G^\circ$ (61)
3292.078	A	20	0.90	4.64	2-3	$a^1D-x^1F^\circ$ (62)
*3278.922§	E	(12)	0.90	4.66	2-3	$a^1D-u^3F^\circ$
m3288.59	P	Ti+	0.90	4.65	2-2	(63)
3267.41	E	tr	0.90	4.67	2-1	$a^1D-u^3D^\circ$ (64)
3172.731	E	4	0.90	4.79	2-3	$a^1D-t^3D^\circ$
3179.291	E	3	0.90	4.78	2-2	(65)
3141.537	E	15	0.90	4.82	2-1	$a^1D-x^1P^\circ$ (66)
3123.074	E	15	0.90	4.85	2-1	$a^1D-w^1P^\circ$ (67)
8675.38	D	150	1.06	2.48	2-3	$a^3P-z^3D^\circ$
8882.99	D	125	1.05	2.47	1-2	(68)
8693.34	D	100	1.04	2.46	0-1	
8766.84	D	75	1.06	2.47	2-2	
8734.70	D	75	1.05	2.46	1-1	
8819.39	D	8	1.08	2.46	2-1	
8126.217	A	20	1.06	3.08	2-1	$a^3P-z^3S^\circ$
6085.228	A	20	1.05	3.08	1-1	(69)
6064.831	A	9	1.04	3.08	0-1	
6058.76	P		1.08	3.10	2-2	$a^3P-z^5S^\circ$
6018.82	E	(0)	1.05	3.10	1-2	(70)
5918.548	A	10	1.06	3.15	2-2	$a^3P-z^3P^\circ$
5903.317	A	5	1.06	3.15	2-1	(71)
5880.308	E	5	1.05	3.15	1-2	
5866.453	A	35	1.06	3.17	2-3	$a^3P-y^3D^\circ$
5899.295	A	25	1.05	3.14	1-2	(72)
5932.112	A	18	1.04	3.13	0-1	
5937.806	A	6	1.06	3.14	2-2	
5941.755	A	12	1.05	3.13	1-1	
5980.89	H	(1)	1.06	3.13	2-1	
5814.00	H	(1)	1.06	3.18	2-3	$a^3P-y^5D^\circ$
5809.75	H	(0)	1.05	3.17	1-2	(73)
5295.781	A	4	1.06	3.39	2-3	$a^3P-x^3D^\circ$
5282.378	B	3	1.05	3.38	1-2	(74)
5284.380	B	2	1.04	3.38	0-1	
5313.239	B	(1)	1.06	3.38	2-2	
5300.012	B	1	1.05	3.38	1-1	
4691.336	A	20	1.06	3.69	2-3	$a^3P-w^3D^\circ$
4698.766	A	20	1.05	3.67	1-2	(75)
*4710.186	A	18	1.04	3.66	0-1	
4723.171	B	10	1.06	3.67	2-2	
4722.603	B	10	1.05	3.66	1-1	
4747.256	E	1	1.06	3.66	2-1	
4690.827	B	3	1.06	3.69	2-3	$a^3P-x^3G^\circ$ (76)
4675.118	A	10	1.06	3.70	2-3	$a^3P-x^5D^\circ$
4688.357	E	2	1.05	3.69	1-2	(77)
m4667.53	P	Ti	1.04	3.69	0-1	
4692.45	P		1.06	3.69	2-2	
4679.73	P		1.05	3.89	1-1	
4432.833	A	10	1.06	3.85	2-3	$a^3P-v^3D^\circ$
4404.397	B	5	1.05	3.85	1-2	(78)
4394.855	E	(2)	1.04	3.85	0-1	
4435.840	B	3	1.06	3.85	2-2	
4405.694	B	2	1.05	3.85	1-1	
m4427.12	P	Ti	1.06	3.85	2-1	
4308.514	B	2	1.06	3.93	2-2	$a^3P-y^3P^\circ$
4302.979	E	in	1.05	3.92	1-1	(79)
4333.440	B	1	1.06	3.92	2-1	
4310.373	B	1	1.05	3.91	1-0	
*4288.181	B	3	1.05	3.93	1-2	
4292.676	E	1	1.04	3.92	0-1	
4078.471	A	30	1.06	4.09	2-2	$a^3P-x^3P^\circ$
4064.203	B	15	1.05	4.09	1-1	(80)
4082.456	A	20	1.06	4.09	2-1	
4085.094	A	15	1.05	4.08	1-0	
4060.263	A	20	1.05	4.09	1-2	
4055.011	A	20	1.04	4.09	0-1	
3989.581	B	(0)	1.06	4.16	2-1	$a^3P-z^1P^\circ$
3972.130	E	(0)	1.05	4.16	1-1	(81)
3963.354	E	(0)	1.04	4.16	0-1	
3782.139	F	2	1.06	4.33	2-2	$a^3P-x^1D^\circ$
3768.445	B	3	1.05	4.33	1-2	(82)
3725.155	A	20	1.06	4.37	2-1	$a^3P-y^3S^\circ$
3709.963	B	20	1.05	4.37	1-1	(83)
3702.291	B	10	1.04	4.37	0-1	
3480.525	A	12	1.06	4.61	2-2	$a^3P-w^3P^\circ$
3485.689	E	8	1.05	4.59	1-1	(84)
3499.099	E	8	1.06	4.59	2-1	
3495.754	E	8	1.05	4.58	1-0	
3467.260	E	6	1.05	4.61	1-2	
3478.918	E	6	1.04	4.59	0-1	
3476.452	E	3	1.06	4.61	2-2	$a^3P-y^5S^\circ$
3463.205	E	1	1.05	4.61	1-2	(85)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ti I continued						
3382.312	E	15	1.06	4.71	2-3	$a^3P-u^3D^\circ$
3390.682	E	10	1.05	4.69	1-2	(86)
3398.634	E	8	1.04	4.67	0-1	
3403.369	E	4	1.06	4.69	2-2	
3405.094	E	5	1.05	4.67	1-1	
m3417.88	P	Fe	1.06	4.67	2-1	
3314.422	A	10	1.06	4.79	2-3	$a^3P-t^3D^\circ$
3309.501	E	15	1.05	4.78	1-2	(87)
3308.391	E	10	1.04	4.77	0-1	
3321.588	E	8	1.06	4.78	2-2	
3314.523	E	8	1.05	4.77	1-1	
3326.639	E	2	1.06	4.77	2-1	
3280.391	E	2	1.06	4.82	2-1	$a^3P-x^1P^\circ$
3268.61	E	1	1.05	4.82	1-1	(88)
3262.63	G	1	1.04	4.82	0-1	
*3260.259§	E	3	1.06	4.85	2-1	$a^3P-w^1P^\circ$
*3248.602§	E	15	1.05	4.85	1-1	(89)
*3213.145§	E	8	1.06	4.90	2-3	$a^3P-e^3D^\circ$
3204.870	E	6	1.05	4.90	1-2	(90)
3201.594	E	5	1.04	4.90	0-1	
3216.203	E	3	1.06	4.90	2-2	
3207.337	E	5	1.05	4.90	1-1	
3218.683	E	tr	1.06	4.90	2-1	
3137.352	E	(1)	1.06	5.00	2-2	$a^3P-v^3P^\circ$
3134.654	E	1	1.05	4.99	1-1	(91)
3145.515	E	1	1.06	4.99	2-1	
*3136.028	E	2	1.05	4.98	1-0	
*3100.666	E	12	1.06	5.04	2-3	$a^3P-r^3D^\circ$
3106.806	E	8	1.05	5.02	1-2	(92)
3112.482	E	8	1.04	5.01	0-1	
3117.455	E	6	1.06	5.02	2-2	
3117.899	E	5	1.05	5.01	1-1	
*3128.640§	E	8	1.06	5.01	2-1	
*3100.866	E	12	1.06	5.04	2-1	$a^3P-x^3S^\circ$
3090.137	E	8	1.05	5.04	1-1	(93)
3084.819	E	4	1.04	5.04	0-1	
2965.707	E	15	1.06	5.22	2-3	$a^3P-q^3D^\circ$
2965.231	E	(6?)	1.05	5.21	1-2	(94)
2965.68	E	8	1.04	5.20	0-1	
2974.934	E	4	1.06	5.21	2-2	
2970.556	E	4	1.05	5.20	1-1	
2980.296	E	tr	1.06	5.20	2-1	
10034.45	D	15	1.45	2.68	4-5	$b^3F-z^3G^\circ$
10048.78	D	12	1.44	2.67	3-4	(95)
10059.87	D	12	1.42	2.65	2-3	
10189.26	C	3	1.45	2.67	4-4	
10170.60	C	3	1.44	2.65	3-3	
7366.60	E	(1)	1.42	3.10	2-2	$b^3F-z^5S^\circ$ (96)
7344.72	E	4	1.45	3.13	4-4	$b^3F-y^3F^\circ$
7357.74	E	3	1.44	3.11	3-3	(97)
7364.11	E	2	1.42	3.10	2-2	
7422.17	E	(2)	1.44	3.10	3-2	
7371.41	E	(0)	1.44	3.13	3-4	
7299.67	I	(2)	1.42	3.11	2-3	
7216.20	E	5	1.44	3.15	3-2	$b^3F-z^3P^\circ$
7160.33	K	(2)	1.42	3.15	2-2	(98)
7138.05	P		1.42	3.15	2-1	
7209.44	E	20	1.45	3.17	4-3	$b^3F-y^3D^\circ$
7244.86	E	10	1.44	3.14	3-2	(99)
7251.74	I	8	1.42	3.13	2-1	
7138.91	E	(1) Ti?	1.44	3.17	3-3	
7188.55	E	(0)	1.42	3.14	2-2	
7084.25	P		1.42	3.17	2-3	
7065.15?	J	(1)	1.45	3.20	4-4	$b^3F-y^5D^\circ$
7130.34	P		1.45	3.18	4-3	(100)
*7007.81	H	(1)	1.42	3.18	2-3	
6666.548	E	(2n)	1.45	3.31	4-5	$b^3F-y^5G^\circ$ (101)
6556.066	A	25	1.45	3.34	4-4	$b^3F-x^3F^\circ$
6554.226	A	20	1.44	3.32	3-3	(102)
6546.276	A	20	1.42	3.31	2-2	
m6592.91	P	Fe	1.44	3.31	3-2	
6497.689	E	3	1.44	3.34	3-4	
6508.135	E	3	1.42	3.32	2-3	
6366.354	A	8	1.45	3.39	4-3	$b^3F-x^3D^\circ$
8336.104	A	8	1.44	3.38	3-2	(103)
6318.027	E	5	1.42	3.38	2-1	
6311.289	E	(1)	1.44	3.39	3-3	
6293.00	P		1.42	3.38	2-2	
6268.50	H	(2)	1.42	3.39	2-3	
6258.706	A	50	1.45	3.43	4-5	$b^3F-y^3G^\circ$
6258.103	A	40	1.44	3.41	3-4	(104)
6261.101	A	35	1.42	3.39	2-3	
6312.240	A	10	1.45	3.41	4-4	
8303.754	A	10	1.44	3.39	3-3	
5839.78	P		1.45	3.57	4-5	$b^3F-y^5F^\circ$
5906.50	P		1.45	3.54	4-3	(105)
5512.529	A	25	1.45	3.89	4-3	$b^3F-w^3D^\circ$
5514.536	B	25	1.44	3.67	3-2	(106)
5514.350	B	20	1.42	3.66	2-1	
5471.198	B	5	1.44	3.69	3-3	
5481.862	B	5	1.42	3.67	2-2	
5449.155	B	1	1.44	3.70	3-3	$b^3F-x^5D^\circ$
5440.53	P		1.42	3.69	2-2	(107)
5490.151	A	12	1.45	3.70	4-3	
5472.898	B	2	1.44	3.89	3-2	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ti I continued						
5474.228	B	6	1.45	3.71	4-5	$b^3F-x^3G^\circ$
5453.646	B	3	1.44	3.70	3-4	(108)
5438.310	B	1	1.42	3.69	2-3	
5494.726	B	(1)	1.45	3.70	4-4	
5470.50	J	(2)	1.44	3.69	3-3	
*5511.795	B	2	1.45	3.69	4-3	
5145.465	A	12	1.45	3.85	4-3	$b^3F-v^3D^\circ$
5113.448	A	10	1.44	3.85	3-2	(109)
5087.055	A	8	1.42	3.85	2-1	
5109.427	B	4	1.44	3.85	3-3	
5085.333	B	4	1.42	3.85	2-2	
5081.39	P		1.42	3.85	2-3	
5035.908	A	25	1.45	3.90	4-5	$b^3F-w^3G^\circ$
5036.468	A	25	1.44	3.89	3-4	(110)
5038.400	A	25	1.42	3.87	2-3	
5071.475	B	7	1.45	3.89	4-4	
5065.985	B	7	1.44	3.87	3-3	
4742.32	P		1.45	4.06	4-3	$b^3F-y^1F^\circ$
4711.68	P		1.44	4.06	3-3	(111)
4687.82	P		1.42	4.06	2-3	
4559.920	A	6	1.45	4.16	4-4	$b^3F-w^3F^\circ$
4535.87	P		1.44	4.16	3-3	(112)
4518.700	B	8	1.42	4.15	2-2	
4564.216	E	1	1.45	4.16	4-3	
4540.873	E	1	1.44	4.15	3-2	
m4531.60	P	Fe	1.44	4.16	3-4	
4513.715	E	1	1.42	4.16	2-3	
4457.428	A	40	1.45	4.22	4-4	$b^3F-v^3F^\circ$
4455.321	A	30	1.44	4.21	3-3	(113)
4453.312	A	30	1.42	4.19	2-2	
4482.688	A	10	1.45	4.21	4-3	
*4474.852	A	8	1.44	4.19	3-2	
4430.366	A	7	1.44	4.22	3-4	
*4434.003	A	15	1.42	4.21	2-3	
4127.09	P		1.45	4.44	4-4	$b^3F-y^1G^\circ$ (114)
3789.293	B	8	1.45	4.71	4-3	$b^3F-u^3D^\circ$
3795.903	B	7	1.44	4.69	3-2	(115)
3798.276	A	6	1.42	4.67	2-1	
3717.259	E	1	1.45	4.77	4-4	$b^3F-t^3F^\circ$ †
3715.795	E	1	1.44	4.76	3-3	(116)
3713.734	E	1	1.42	4.75	2-2	
3728.676	E	1	1.44	4.75	3-3	
3704.295	B	15	1.45	4.79	4-3	$b^3F-t^3D^\circ$
3694.445	A	10	1.44	4.78	3-2	(117)
3685.964	B	2	1.42	4.77	2-1	
3651.90	P		1.45	4.83	4-5	$b^3F-x^3H^\circ$
3638.49	P		1.44	4.83	3-4	(118)
3656.73	P		1.45	4.83	4-4	
3487.80	P		1.44	4.98	3-3	$b^3F-w^1F^\circ$ (119)
3439.305	E	8	1.45	5.04	4-3	$b^3F-r^3D^\circ$
3443.644	E	5	1.44	5.02	3-2	(120)
3444.403	E	3	1.42	5.01	2-1	
3423.172	E	2	1.44	5.04	3-3	
3430.874	E	2	1.42	5.02	2-2	
3434.69	P		1.45	5.05	4-4	$b^3F-w^1G^\circ$ (121)
3297.68	P		1.45	5.20	4-4	$b^3F-v^5D^\circ$
3309.32	P		1.45	5.18	4-3	(122)
3274.047	E	(5)	1.45	5.22	4-3	$b^3F-q^3D^\circ$
3270.562	E	3	1.44	5.21	3-2	(123)
3265.480	E	2	1.42	5.20	2-1	
3259.42	E	2	1.44	5.22	3-3	
3259.04	G	1	1.42	5.21	2-2	
9718.96	D	25	1.50	2.77	4-3	$a^1G-z^1F^\circ$ (124)
7949.17	E	(3)	1.50	3.05	4-4	$a^1G-z^1G^\circ$ (125)
4820.410	A	20	1.50	4.06	4-3	$a^1G-y^1F^\circ$ (126)
*4526.374	E	1	1.50	4.22	4-4	$a^1G-v^3F^\circ$ (127)
4427.098	A	40	1.50	4.28	4-5	$a^1G-z^1H^\circ$ (128)
4186.119	A	25	1.50	4.44	4-4	$a^1G-y^1G^\circ$ (129)
3919.822	B	5	1.50	4.64	4-3	$a^1G-x^1F^\circ$ (130)
3724.570	A	20	1.50	4.81	4-4	$a^1G-x^1G^\circ$ (131)
3702.942	B	2	1.50	4.83	4-4	$a^1G-x^3H^\circ$ (132)
3547.029	A	15	1.50	4.98	4-3	$a^1G-w^1F^\circ$ (133)
3456.661	E	6	1.50	5.07	4-5	$a^1G-y^1H^\circ$ (134)
3431.08	P		1.50	5.09	4-4	$a^1G-u^3G^\circ$ (135)
3392.713	E	10	1.50	5.13	4-3	$a^1G-v^1F^\circ$ (138)
3119.725	E	15	1.50	5.45	4-5	$a^1G-x^1H^\circ$ (137)
9090.70	D	25	1.74	3.10	3-2	$a^5P-z^5S^\circ$
9027.32	D	15	1.73	3.10	2-2	(138)
8989.44	D	12	1.73	3.10	1-2	
8821.14	D	12	1.74	3.14	3-2	$a^5P-y^3D^\circ$
8761.44	D	15	1.73	3.14	2-2	(139)
8725.76	D	6	1.73	3.14	1-2	
8778.66	D	30	1.74	3.15	3-2	$a^5P-z^3P^\circ$
8719.56	D	30	1.73	3.15	2-2	(140)

Ti I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
8457.10	D	40	1.74	3.20	3-4	$a^5P-y^5D^o$
8494.42	D	30	1.73	3.18	2-3	(141)
8531.36	D	15	1.73	3.17	1-2	
8550.54	D	25	1.74	3.18	3-3	
8565.45	D	25	1.73	3.17	2-2	
8578.40	D	15	1.73	3.16	1-1	
8612.91	D	7	1.73	3.16	2-1	
*8600.98	D	25	1.73	3.18	1-0	
7474.94	E	(1p?)	1.74	3.39	3-3	$a^5P-x^3D^o$
7466.44	P		1.73	3.38	2-2	(142)
7431.98	P		1.73	3.39	2-3	
*7253.76	I	(1p?)	1.74	3.44	3-3	$a^5P-z^5P^o$
7291.03	P		1.73	3.42	2-2	(143)
7305.87	H	(1)	1.73	3.42	1-1	
7332.26	I	(1p?)	1.74	3.42	3-2	
7330.97	I	(1p?)	1.73	3.42	2-1	
7213.35	E	(1)	1.73	3.44	2-3	
7266.29	E	(0)	1.73	3.42	1-2	
6266.021	E	(1)	1.74	3.71	3-4	$a^5P-x^5D^o$
6264.825	E	(0)	1.73	3.70	2-3	(144)
6277.525	E	(00)	1.73	3.69	1-2	
*6295.251	E	(2)	1.74	3.70	3-3	
6295.949	E	(0)	1.73	3.69	2-2	
6298.075	E	(00)	1.73	3.69	1-1	
4617.269	A	30	1.74	4.41	3-4	$a^5P-w^5D^o$
4623.098	A	25	1.73	4.40	2-3	(145)
4629.336	A	15	1.73	4.39	1-2	
4639.669	B	15	1.74	4.40	3-3	
4639.369	B	18	1.73	4.39	2-2	
4639.944	B	15	1.73	4.39	1-1	
4656.048	B	6	1.74	4.39	3-2	
4650.016	B	10	1.73	4.39	2-1	
4645.193	A	12	1.73	4.38	1-0	
4481.261	A	30	1.74	4.50	3-3	$a^5P-y^5P^o$
4480.600	B	5	1.73	4.49	2-2	(146)
4479.724	B	9	1.73	4.48	1-1	
4496.146	A	20	1.74	4.49	3-2	
4489.089	A	20	1.73	4.48	2-1	
4465.807	A	20	1.73	4.50	2-3	
4471.238	A	20	1.73	4.49	1-2	
4305.474	B	2	1.74	4.61	3-2	$a^5P-w^3P^o$
*4291.214	B	5n	1.73	4.61	2-2	(147)
4299.229	E	15	1.74	4.61	3-2	$a^5P-y^5S^o$
4284.988	B	8	1.73	4.61	2-2	(148)
4276.441	B	8	1.73	4.61	1-2	
9832.15	D	25	1.88	3.13	5-4	$a^3G-y^3F^o$
9927.35	D	20	1.87	3.11	4-3	(149)
9997.94	D	15	1.87	3.10	3-2	
9879.41	D	3	1.87	3.11	3-3	
8468.46	D	100	1.88	3.34	5-4	$a^3G-x^3F^o$
8518.37	D	100	1.87	3.32	4-3	(150)
8548.07	D	100	1.87	3.31	3-2	
8423.10	D	20	1.87	3.34	4-4	
8483.16	D	25	1.87	3.32	3-3	
*7978.88	E	(4)	1.88	3.43	5-5	$a^3G-y^3G^o$
8024.84	E	(2)	1.87	3.41	4-4	(151)
8068.24	E	(2)	1.87	3.39	3-3	
8066.05	P		1.88	3.41	5-4	
7938.53	P		1.87	3.43	4-5	
6746.433	E	(1)	1.88	3.71	5-5	$a^3G-x^3G^o$
6748.43	H	(1)	1.87	3.70	4-4	(152)
6751.94	H	(0)	1.87	3.69	3-3	
6092.814	E	4	1.88	3.90	5-5	$a^3G-w^3G^o$
6121.008	E	3	1.87	3.89	4-4	(153)
6146.225	E	3	1.87	3.87	3-3	
5953.162	A	30	1.88	3.95	5-8	$a^3G-z^3H^o$
5965.828	A	30	1.87	3.94	4-5	(154)
5978.543	A	25	1.87	3.93	3-4	
5988.560	E	2	1.88	3.94	5-5	
5996.007	E	2	1.87	3.93	4-4	
5409.609	A	6	1.88	4.16	5-4	$a^3G-w^3F^o$
5397.093	A	4	1.87	4.16	4-3	(155)
5389.996	A	3	1.87	4.15	3-2	
5391.06	P		1.87	4.16	4-4	
5382.96	P		1.87	4.16	3-3	
5265.967	A	10	1.88	4.22	5-4	$a^3G-v^3F^o$
5283.441	A	8	1.87	4.21	4-3	(156)
5297.236	A	6	1.87	4.19	3-2	
*5248.402	E	(1)	1.87	4.22	4-4	
5269.93	H	(1)	1.87	4.21	3-3	
4885.082	A	20	1.88	4.41	5-6	$a^3G-y^3H^o$
4899.910	A	20	1.87	4.39	4-5	(157)
4913.616	A	20	1.87	4.38	3-4	
4915.236	B	5	1.88	4.39	5-5	
4925.398	B	5	1.87	4.38	4-4	
4811.074	B	4	1.88	4.44	5-4	$a^3G-y^1G^o$
						(158)
4449.985	B	1	1.87	4.64	4-3	$a^3G-x^1F^o$
4440.345	A	10	1.87	4.64	3-3	(159)
4449.143	A	30	1.88	4.65	5-5	$a^3G-v^3G^o$
4450.898	A	25	1.87	4.64	4-4	(160)
4453.708	A	20	1.87	4.64	3-3	
4463.539	B	8	1.88	4.84	5-4	
4463.391	B	8	1.87	4.64	4-3	
4436.586	A	4	1.87	4.65	4-5	
4441.272	B	4	1.87	4.64	3-4	
4417.274	A	15	1.88	4.87	5-4	$a^3G-u^3F^o$
4426.054	A	10	1.87	4.66	4-3	(161)
*4434.003	A	15	1.87	4.65	3-2	
4404.911	B	5	1.87	4.67	4-4	
4416.535	B	4	1.87	4.66	3-3	

Ti I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4263.134	A	15	1.88	4.77	5-4	$a^3G-t^3F^o$
*4274.584	A	15	1.87	4.76	4-3	(162)
4282.702	A	12	1.87	4.75	3-2	
4251.618	B	3	1.87	4.77	4-4	
4265.723	B	4	1.87	4.76	3-3	
4169.330	B	7	1.88	4.84	5-8	$a^3G-x^3H^o$
4166.311	B	6	1.87	4.83	4-5	(163)
4164.134	B	4	1.87	4.83	3-4	
4177.357	E	(2)	1.88	4.83	5-5	
4172.609	E	(2)	1.87	4.83	4-4	
3895.59	P		1.88	5.05	5-4	$a^3G-w^1G^o$
3885.95	P		1.87	5.05	4-4	(164)
3878.61	P		1.87	5.05	3-4	
3786.253	B	3	1.88	5.14	5-4	$a^3G-s^3F^o$
3801.093	B	3	1.87	5.12	4-3	(165)
3811.385	B	4	1.87	5.10	3-2	
3733.767	B	4n	1.88	5.18	5-6	$a^3G-w^3H^o$ †
3738.901	E	5n	1.87	5.17	4-5	(166)
3748.101	B	6n	1.87	5.16	3-4	
3504.773	E	2	1.88	5.40	5-4	$a^3G-r^3F^o$
3516.838	E	3	1.87	5.38	4-3	(167)
3525.161	E	3	1.87	5.37	3-2	
3428.955	E	4	1.88	5.48	5-5	$a^3G-t^3G^o$
3446.603	E	2	1.87	5.45	4-4	(168)
*3454.165	E	1	1.88	5.45	5-4	
3352.43	P		1.88	5.56	5-4	$a^3G-q^3F^o$
3358.56	P		1.87	5.55	4-3	(169)
3364.10	P		1.87	5.53	3-2	
3010.42	P		1.87	5.97	4-3	$a^3G-u^1F^o$
						(170)
*5054.070	B	3	1.87	4.31	0-1	$a^1S-y^1P^o$
						(171)
3601.16	J	1	1.87	5.30	0-1	$a^1S-v^1P^o$
						(172)
5025.570	A	18	2.03	4.49	6-5	$z^5G^o-e^5F$
5013.284	B	18	2.01	4.47	5-4	(173)
5000.991	B	10	1.99	4.46	4-3	
4989.140	B	10	1.97	4.45	3-2	
4978.191	A	10	1.96	4.44	2-1	
4977.731	B	5	2.01	4.49	5-5	
4973.051	B	6	1.99	4.47	4-4	
4968.566	B	6	1.97	4.46	3-3	
4964.713	B	5	1.96	4.45	2-2	
4938.04	H	(0n)	1.99	4.49	4-5	
4941.015	E	(1)	1.97	4.47	3-4	
4944.388	E	(0)	1.96	4.46	2-3	
4355.308	E	1	2.03	4.87	6-5	$z^5G^o-f^5F$
4340.018	E	1	2.01	4.85	5-4	(174)
3911.185	B	8n	2.03	5.19	6-8	$z^5G^o-e^5G$
*3899.668	B	(2)	2.01	5.17	5-5	(175)
3888.020	B	4n	1.99	5.16	4-4	
3877.591	B	2n	1.97	5.15	3-3	
3869.275	B	5n	1.96	5.15	2-2	
3928.97	P		2.03	5.17	6-5	
3912.589	B	2	2.01	5.18	5-4	
3897.290	B	1	1.99	5.15	4-3	
3884.090	B	(0)	1.97	5.15	3-2	
3882.147	B	15n	2.01	5.19	5-6	
*3875.262	A	20n	1.99	5.17	4-5	
3868.397	B	10n	1.97	5.16	3-4	
3862.823	B	10n	1.96	5.15	2-3	
3882.892	B	20n	2.03	5.21	6-7	$z^5G^o-e^5H$
3866.446	A	15n	2.01	5.20	5-6	(176)
3858.133	B	15n	1.99	5.19	4-5	
3853.719	B	10n	1.97	5.17	3-4	
3853.038	B	10n	1.96	5.16	2-3	
3895.243	A	30n	2.03	5.20	6-6	
3882.313	B	10n	2.01	5.19	5-5	
3873.203	B	10n	1.99	5.17	4-4	
3867.739	B	3	1.97	5.16	3-3	
3911.362	E	(2)	2.03	5.19	6-5	
3897.581	B	1	2.01	5.17	5-4	
3887.365	E	(1n)	1.99	5.18	4-3	
3720.384	E	2	2.03	5.35	6-5	$z^5G^o-g^5F$
3707.549	B	10n	2.01	5.34	5-4	(177)
3696.885	E	2	1.99	5.33	4-3	
3688.27	P		1.97	5.32	3-2	
3681.272	E	1	1.98	5.31	2-1	
3694.10	P		2.01	5.35	5-5	
3685.47	P		1.99	5.34	4-4	
3679.14	P		1.97	5.33	3-3	
3674.92	P		1.96	5.32	2-2	
*3368.176§	E	5	2.03	5.70	6-5	$z^5G^o-h^5F$
3361.50	G	1	2.01	5.68	5-4	(178)
3358.196	E	2	1.99	5.67	4-3	
*3350.548§	E	2	1.97	5.86	3-2	
3344.931	E	1	1.96	5.85	2-1	
3344.630	E	tr	2.01	5.70	5-5	
3343.379	E	tr	1.99	5.68	4-4	
*3341.554	E	1	1.97	5.87	3-3	
3339.54	E	1n	1.96	5.66	2-2	
3228.128	E	12	2.03	5.88	6-6	$z^5G^o-g^5G$
3223.519	E	10	2.01	5.84	5-5	(179)
3221.381	E	10	1.99	5.82	4-4	
3219.212	E	8	1.97	5.81	3-3	
3217.942	E	8	1.96	5.80	2-2	
3243.513	E	3	2.03	5.84	6-5	
3238.224	E	4	2.01	5.82	5-4	
3232.791	E	3	1.99	5.81	4-3	
3228.183	E	2	1.97	5.80	3-2	
3206.344	E	5	2.01	5.86	5-6	
3206.825	E	5	1.99	5.84	4-5	
3207.897	E	5	1.97	5.82	3-4	
3209.030	E	4	1.96	5.81	2-3	

Ti I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3143.350	E	12N	2.03	5.96	6-7	$z^5G^o-g^5H$
3139.87	E	10N	2.01	5.94	5-6	(180)
3135.069	E	8N	1.99	5.92	4-5	
3130.175	E	8N	1.97	5.91	3-4	
3127.684	E	8N	1.98	5.91	2-3	
3123.769	E	20n	2.03	5.98	6-5	$z^5G^o-j^5F$
3118.130	E	15	2.01	5.97	5-4	(181)
3114.092	E	20n	1.99	5.95	4-3	
3111.283	E	10n	1.97	5.94	3-2	
3107.468	E	12n	1.96	5.93	2-1	
3105.220	E	2n	2.01	5.98	5-5	
3102.517	E	3n	1.99	5.97	4-4	
3101.528	E	4n	1.97	5.95	3-3	
3101.77	G	1n	1.96	5.94	2-2	
8518.05	D	60	2.13	3.57	5-4	$z^5F^o-a^5D$
8467.15	D	75	2.11	3.57	4-3	(182)
8424.41	D	50	2.09	3.56	3-2	
8389.48	D	25	2.08	3.55	2-1	
8417.54	D	25	2.11	3.57	4-4	
8386.24	P		2.09	3.57	3-3	
8363.58	P		2.08	3.56	2-2	
5224.301	A	15	2.13	4.49	5-5	$z^5F^o-e^5F$
5224.938	A	8	2.11	4.47	4-4	(183)
5224.558	B	6	2.09	4.46	3-3	
5223.623	B	6	2.08	4.45	2-2	
5222.685	B	6	2.08	4.44	1-1	
5263.483	B	3	2.13	4.47	5-4	
5255.811	B	5	2.11	4.46	4-3	
5247.293	B	5	2.09	4.45	3-2	
*5238.560	B	6	2.08	4.44	2-1	
5186.329	B	3	2.11	4.49	4-5	
5194.043	E	4	2.09	4.47	3-4	
5201.096	E	4	2.08	4.46	2-3	
5207.852	B	3	2.08	4.45	1-2	
4503.762	A	4n	2.13	4.87	5-5	$z^5F^o-f^5F$
4497.709	B	3	2.11	4.85	4-4	(184)
4492.540	B	3	2.09	4.84	3-3	
m4488.27	P	Ti+	2.08	4.83	2-2	
4485.013	B	1	2.08	4.83	1-1	
*4526.374	E	1	2.13	4.85	5-4	
4515.610	B	1	2.11	4.84	4-3	
4505.715	E	1	2.09	4.83	3-2	
4496.75	P		2.08	4.83	2-1	
4475.518	E	1	2.11	4.87	4-5	
*4474.852	A	8	2.09	4.85	3-4	
4475.19	P		2.08	4.84	2-3	
4476.61	P		2.08	4.83	1-2	
4030.512	A	25n	2.13	5.19	5-6	$z^5F^o-e^5G$
4026.539	A	25n	2.11	5.17	4-5	(185)
4021.812	B	25n	2.09	5.16	3-4	
4017.771	A	15n	2.08	5.15	2-3	
4015.377	A	12n	2.08	5.15	1-2	
4049.399	E	2n	2.13	5.17	5-5	
4040.310	B	4n	2.11	5.16	4-4	
4031.753	B	3n	2.09	5.15	3-3	
4016.264	B	6	2.13	5.20	5-4	$z^5F^o-g^3F$
4012.786	B	3	2.11	5.18	4-3	(186)
4013.24	P		2.09	5.17	3-2	
3993.796	B	1	2.11	5.20	4-4	
3994.56	P		2.09	5.18	3-3	
3975.69	P		2.09	5.20	3-4	
3980.821	B	(0)	2.08	5.18	2-3	
4013.587	A	12n	2.13	5.20	5-6	$z^5F^o-e^5H$
4008.046	B	9n	2.11	5.19	4-5	(187)
4005.952	B	6n	2.09	5.17	3-4	
4007.195	B	3n	2.08	5.16	2-3	
4003.789	B	10n	2.13	5.21	5-4	$z^5F^o-e^5D$
4002.468	B	9n	2.11	5.19	4-3	(188)
3999.336	B	7n	2.09	5.18	3-2	
3994.683	B	4n	2.08	5.17	2-1	
3990.184	E	(1n)	2.08	5.17	1-0	
3981.466	B	(0)	2.11	5.21	4-4	
3984.313	B	3	2.09	5.19	3-3	
3985.580	B	(1)	2.08	5.18	2-2	
3828.180	B	3	2.13	5.35	5-5	$z^5F^o-g^5F$ †
3822.026	B	(2)	2.11	5.34	4-4	(189)
3817.639	B	5	2.09	5.33	3-3	
3814.855	B	4	2.08	5.32	2-2	
3813.261	B	(0)	2.08	5.31	1-1	
3306.879	E	10	2.13	5.86	5-6	$z^5F^o-g^5G$
3309.730	E	6	2.11	5.84	4-5	(190)
3312.690	E	5	2.09	5.82	3-4	
3315.237	E	2	2.08	5.81	2-3	
3318.362	E	4	2.08	5.80	1-2	
3325.155	E	3	2.13	5.84	5-5	
3325.229	E	3	2.11	5.82	4-4	
*3324.754	E	4	2.08	5.80	(3-3, 2-2)	
3340.77	H	(1)	2.13	5.82	5-4	
3337.40	G	1n	2.11	5.81	4-3	
3334.35	H	(1n)	2.09	5.80	3-2	
3199.43	G	1n	2.13	5.98	5-5	$z^5F^o-j^5F$
3198.728	E	1n	2.11	5.97	4-4	(191)
3199.34	H	(1n)	2.09	5.95	3-3	
*3213.145§	E	8	2.13	5.97	5-4	
3211.07	E	1n	2.11	5.95	4-3	
3141.670	E	10	2.13	6.05	5-4	$z^5F^o-h^5D$ †
3129.075	E	7	2.11	6.05	4-3	(192)
*3128.640§	E	8	2.09	6.04	3-2	
3125.656	E	(2)	2.08	6.03	2-1	
3125.553	E	2	2.08	6.02	1-0	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ti I continued						
10057.69	D	25	2.17	3.39	3-3	$a^3D-x^3D^o$
10003.02	D	25	2.15	3.38	2-2	(193)
10011.72	D	15	2.14	3.38	1-1	
10120.90	C	10	2.17	3.38	3-2	
10066.47	D	8	2.15	3.38	2-1	
9941.33	D	8	2.15	3.39	2-3	
9948.98	D	8	2.14	3.38	1-2	
9661.42	D	10	2.17	3.44	3-3	$a^3D-z^5P^o$
9690.82	D	2	2.15	3.42	2-2	(194)
8080.55	P		2.17	3.69	3-3	$a^3D-w^3D^o$
8098.50	P		2.15	3.67	2-2	(195)
8133.36	P		2.14	3.86	1-1	
6419.15	H	(2)	2.17	4.09	3-2	$a^3D-x^3P^o$ †
8381.418	E	(1)	2.15	4.09	2-1	(198)
6381.41	H	(1)	2.14	4.08	1-0	
8188.14	J	3	2.17	4.16	3-4	$a^3D-w^3F^o$ †
8149.743	E	2	2.15	4.18	2-3	(197)
8138.38	I	1	2.14	4.15	1-2	
5999.003	F	4n	2.17	4.22	3-4	$a^3D-v^3F^o$
6002.640	E	(0)	2.15	4.21	2-3	(198)
6018.423	L	(1)	2.14	4.19	1-2	
5052.879	A	8	2.17	4.81	3-2	$a^3D-w^3P^o$
5062.112	A	7	2.15	4.59	2-1	(199)
5069.351	B	5	2.14	4.58	1-0	
5023.39	H	(2)	2.15	4.81	2-2	
5048.208	E	(1)	2.14	4.59	1-1	
4921.768	A	12	2.17	4.87	3-4	$a^3D-u^3F^o$
4919.867	A	10	2.15	4.66	2-3	(200)
4928.342	A	12	2.14	4.65	1-2	
4948.183	B	3	2.17	4.86	3-3	
4941.562	B	3	2.15	4.85	2-2	
4848.487	B	8	2.17	4.71	3-3	$a^3D-u^3D^o$
4864.187	B	4	2.15	4.69	2-2	(201)
4880.922	B	3	2.14	4.67	1-1	
4891.828	B	1	2.17	4.69	3-2	
4893.90	H	(1)	2.15	4.67	2-1	
4821.29	H	(1p?)	2.15	4.71	2-3	
4731.172	A	9	2.17	4.77	3-4	$a^3D-t^3F^o$
4733.428	B	6	2.15	4.78	2-3	(202)
4742.129	B	3	2.14	4.75	1-2	
4759.74	H	(1p?)	2.17	4.76	3-3	
4754.38	H	(1p?)	2.15	4.75	2-2	
*4710.186	A	18	2.17	4.79	3-3	$a^3D-t^3D^o$
4698.88	P	(6?)	2.15	4.78	2-2	(203)
4696.923	B	4	2.14	4.77	1-1	
4724.879	E	(2)	2.17	4.78	3-2	
4708.976	E	1	2.15	4.77	2-1	
4684.484	E	2	2.15	4.79	2-3	
4688.921	E	4	2.14	4.78	1-2	
4360.487	A	4	2.17	5.00	3-2	$a^3D-v^3P^o$
4354.064	B	3	2.15	4.99	2-1	(204)
4346.810	E	1	2.14	4.98	1-0	
4338.478	B	1	2.15	5.00	2-2	
4343.798	B	1	2.14	4.99	1-1	
4289.919	B	3	2.17	5.04	3-3	$a^3D-r^3D^o$
m4300.52	P	T1	2.15	5.02	2-2	(205)
4311.854	B	2	2.14	5.01	1-1	
4150.963	A	10	2.17	5.14	3-4	$a^3D-s^3F^o$
4159.834	A	9	2.15	5.12	2-3	(206)
4171.018	B	8	2.14	5.10	1-2	
4179.860	B	(00)	2.17	5.12	3-3	
4180.498	B	(00)	2.15	5.10	2-2	
4099.188	A	8	2.17	5.18	3-2	$a^3D-u^3P^o$
4077.148	B	4	2.15	5.18	2-1	(207)
4065.595	B	(0)	2.14	5.18	1-0	
4079.708	B	8	2.15	5.18	2-2	
4068.144	E	3	2.14	5.18	1-1	
4035.828	A	10	2.17	5.22	3-3	$a^3D-q^3D^o$
4033.883	B	8	2.15	5.21	2-2	(208)
4034.884	B	5	2.14	5.20	1-1	
4052.930	B	2	2.17	5.21	3-2	
4043.775	E	2	2.15	5.20	2-1	
4016.943	B	3	2.15	5.22	2-3	
m4025.07	P	T1+	2.14	5.21	1-2	
*8496.03	D	60	2.24	3.89	2-3	$b^3P-w^3D^o$
8539.36	D	60	2.23	3.67	1-2	(209)
8569.72	D	50	2.22	3.86	0-1	
*8600.98	D	25	2.24	3.67	2-2	
8618.44	D	20	2.23	3.86	1-1	
8442.98	D	20	2.24	3.70	2-3	$b^3P-x^5D^o$
8495.51	D	15	2.23	3.88	1-0?	(210)
7854.44	E	(2)	2.24	3.85	2-3	$b^3P-v^3D^o$ †
7614.50	E	(1p?)	2.23	3.85	1-2	(211)
7580.55	H	(1)	2.22	3.85	0-1	
7318.39	E	(2)	2.24	3.93	2-2	$b^3P-y^3P^o$
7361.56	P		2.24	3.92	2-1	(212)
7337.78	P		2.23	3.91	1-0	
7273.77	E	(0)	2.23	3.93	1-2	
6678.60	P		2.24	4.09	2-2	$b^3P-z^3P^o$ (213)
5780.778	B	2	2.24	4.37	2-1	$b^3P-y^3S^o$
5752.89	I	1	2.23	4.37	1-1	(214)
5212.371	B	3	2.24	4.61	2-2	$b^3P-w^3P^o$
5230.967	B	(0)	2.23	4.59	1-1	(215)
5189.61	P		2.23	4.81	1-2	
5212.997	B	(0)	2.22	4.59	0-1	
Ti I continued						
4995.062	B	(0)	2.24	4.71	2-3	$b^3P-u^3D^o$ (216)
4848.41	P		2.24	4.79	2-3	$b^3P-t^3D^o$
4843.989	B	2	2.23	4.78	1-2	(217)
4839.251	E	(1)	2.22	4.77	0-1	
4863.75	P		2.24	4.78	2-2	
4854.727	B	(00)	2.23	4.77	1-1	
*4404.276	B	10	2.24	5.04	2-3	$b^3P-r^3D^o$
4421.754	A	6	2.23	5.02	1-2	(218)
4431.284	B	4	2.22	5.01	0-1	
4438.232	B	2	2.24	5.02	2-2	
4444.267	B	(1)	2.23	5.01	1-1	
*4404.276	B	10	2.24	5.04	2-1	$b^3P-x^3S^o$
4388.077	B	3	2.23	5.04	1-1	(219)
4375.425	E	1	2.22	5.04	0-1	
4303.465	B	8	2.24	5.18	2-2	$b^3P-u^3P^o$
4186.01	P		2.23	5.18	1-1	(220)
4200.752	B	6	2.24	5.18	2-1	
4183.294	B	4	2.23	5.18	1-0	
4188.694	B	5	2.23	5.18	1-2	
4174.472	B	3	2.22	5.18	0-1	
4138.894	B	(1)	2.24	5.22	2-3	$b^3P-q^3D^o$
4140.42	P		2.23	5.21	1-2	(221)
4139.48	H	(1)	2.22	5.20	0-1	
4154.865	E	2	2.24	5.21	2-2	
4150.809	B	(0)	2.23	5.20	1-1	
3698.183	E	3	2.24	5.58	2-2	$b^3P-t^3P^o$
3710.186	E	(0)	2.24	5.57	2-1	(222)
3705.53	J	(1)	2.23	5.56	1-0	
3686.71	H	(0)	2.23	5.58	1-2	
3689.871	E	(0)	2.22	5.57	0-1	
10460.07	C	10	2.25	3.43	6-5	$a^3H-y^3G^o$
10553.02	C	8	2.24	3.41	5-4	(223)
10565.97	C	5	2.23	3.39	4-3	
8438.93	D	75	2.25	3.71	6-5	$a^3H-x^3G^o$
8450.89	D	75	2.24	3.70	5-4	(224)
8418.97	D	60	2.23	3.69	4-3	
8402.54	D	5	2.24	3.71	5-5	
7440.60	E	(3)	2.25	3.90	6-5	$a^3H-w^3G^o$
7489.81	E	(2)	2.24	3.89	5-4	(225)
7496.12	E	(2)	2.23	3.87	4-3	
8745.58	P		2.23	4.06	4-3	$a^3H-y^1F^o$ (226)
5999.668	A	8	2.23	4.28	4-5	$a^3H-z^1H^o$ (227)
5715.123	A	9	2.25	4.41	6-6	$a^3H-y^3H^o$
5739.464	A	9	2.24	4.39	5-5	(228)
5739.975	B	4	2.23	4.38	4-4	
5756.45	P		2.25	4.39	6-5	
5597.92	I	(2n)	2.24	4.44	5-4	$a^3H-y^1G^o$
5565.476	A	9	2.23	4.44	4-4	(229)
5127.367	E	(1)	2.25	4.65	6-5	$a^3H-v^3G^o$
5132.931	B	(0)	2.24	4.64	5-4	(230)
5122.082	B	(00)	2.23	4.84	4-3	
4856.012	A	20	2.25	4.79	6-7	$a^3H-z^3I^o$
4870.129	A	20	2.24	4.77	5-8	(231)
4868.264	A	18	2.23	4.78	4-5	
4882.326	B	2	2.25	4.77	6-6	
4893.065	B	2	2.24	4.78	5-5	
4778.259	A	10	2.23	4.81	4-4	$a^3H-x^1G^o$ (232)
4759.272	A	25	2.25	4.84	6-6	$a^3H-x^3H^o$
4758.120	A	25	2.24	4.83	5-5	(233)
4742.791	A	20	2.23	4.83	4-4	
4769.775	B	4	2.25	4.83	6-5	
4766.330	B	4	2.24	4.83	5-4	
4747.680	B	3	2.24	4.84	5-6	
4734.682	B	3	2.23	4.83	4-5	
4346.104	A	5	2.23	5.07	4-5	$a^3H-y^1H^o$ (234)
4318.631	A	10n	2.25	5.10	6-5	$a^3H-u^3G^o$
4325.134	A	9n	2.24	5.09	5-4	(235)
4321.655	A	8n	2.23	5.08	4-3	
4309.071	B	1	2.24	6.10	5-5	
8598.18	D	60	2.26	3.69	4-3	$b^1G-x^3G^o$ (236)
6861.47	E	6	2.26	4.06	4-3	$b^1G-y^1F^o$ (237)
8091.175	A	20	2.26	4.28	4-5	$b^1G-z^1H^o$ (238)
5823.879	B	3	2.26	4.38	4-4	$b^1G-y^3H^o$ (239)
5644.137	A	18	2.26	4.44	4-4	$b^1G-y^1G^o$ (240)
4838.125	B	6	2.26	4.81	4-4	$b^1G-x^1G^o$ (241)
4799.797	A	12	2.26	4.83	4-4	$b^1G-x^3H^o$ (242)
4424.401	B	2	2.26	5.05	4-4	$b^1G-w^1G^o$ (243)
4393.925	A	8	2.26	5.07	4-5	$b^1G-y^1H^o$ (244)
4368.941	B	2	2.26	5.08	4-3	$b^1G-u^3G^o$ (245)
3938.005	B	2n	2.26	5.39	4-4	$b^1G-v^1G^o$ (246)
3574.245	E	8	2.26	5.71	4-4	$b^1G-u^1G^o$ (247)
9746.86	D	15	2.31	3.57	4-4	$z^5D^o-a^5D$ †
9717.00	D	10	2.30	3.57	3-3	(248)
9702.86	D	3	2.29	3.58	2-2	
Ti I continued						
5662.154	A	12	2.31	4.49	4-5	$z^5D^o-e^5F$
5675.413	A	9	2.30	4.47	3-4	(249)
5689.465	A	10	2.29	4.46	2-3	
5702.666	B	6	2.28	4.45	1-2	
5713.895	B	3	2.28	4.44	0-1	
5708.199	B	3	2.31	4.47	4-4	
5711.852	B	4	2.30	4.46	3-3	
5716.450	B	4	2.29	4.45	2-2	
5720.445	B	3	2.28	4.44	1-1	
5739.08	P		2.30	4.45	3-2	
4825.445	B	3	2.31	4.87	4-5	$z^5D^o-f^5F$
4827.597	F	2	2.30	4.85	3-4	(250)
4832.065	B	(0)	2.29	4.84	2-3	
4837.42	P		2.28	4.83	1-2	
4270.139	B	7n	2.31	5.20	4-4	$z^5D^o-g^3F$
4273.312	B	2	2.30	5.18	3-3	(251)
4291.88	J	(1)	2.31	5.18	4-3	
4251.769	B	2n	2.30	5.20	3-4	
4260.738	B	2	2.29	5.18	2-3	
4256.025	A	8n	2.31	5.21	4-4	$z^5D^o-e^5D$
4261.609	B	5n	2.30	5.19	3-3	(252)
4266.227	B	3n	2.29	5.18	2-2	
4268.928	E	(1n)	2.28	5.17	1-1	
4280.069	B	2n	2.31	5.19	4-3	
4278.829	B	3n	2.30	5.18	3-2	
4276.657	B	2	2.29	5.17	2-1	
4274.408	B	(0)	2.28	5.17	1-0	
4237.786	B	(0)	2.30	5.21	3-4	
4249.114	A	5n	2.29	5.19	2-3	
4258.523	A	4n	2.28	5.18	1-2	
4265.273	B	3n	2.28	5.17	0-1	
4137.284	A	10n	2.31	5.29	4-3	$z^5D^o-e^5P$ †
4143.048	B	7n	2.30	5.27	3-2	(253)
4150.557	B	3	2.29	5.26	2-1	
4120.037	B	2	2.30	5.29	3-3	
4131.244	B	4	2.29	5.27	2-2	
4143.280	B	3	2.28	5.26	1-1	
4058.139	A	7	2.31	5.35	4-5	$z^5D^o-g^5F$
4057.612	B	5	2.30	5.34	3-4	(254)
4060.09	P		2.29	5.33	2-3	
m4064.22	P	T1	2.28	5.32	1-2	
4068.661	E	(1)	2.28	5.31	0-1	
4074.356	B	3	2.31	5.34	4-4	
4071.469	E	2	2.30	5.33	3-3	
4071.211	E	2	2.29	5.32	2-2	
3323.896	E	2	2.31	6.02	4-5	$z^5D^o-k^5F$ †
3323.660	E	2n	2.30	6.01	3-4	(255)
3325.365	E	1n	2.29	6.00	2-3	
3328.326	E	1	2.28	5.99	1-2	
7038.80	E	6	2.33	4.09	2-2	$c^3P-x^3P^o$
7008.35	E	(1)	2.32	4.09	1-1	(256)
7050.65	E	(1)	2.33	4.09	2-1	
7010.94	I	(1)	2.32	4.08	1-0	
6996.63	E	(1)	2.32	4.09	1-2	
7004.60	J	(1)	2.32	4.09	0-1	
6017.52	P		2.32	4.37	1-1	$c^3P-y^3S^o$ (257)
5419.189	B	1	2.33	4.61	2-2	$c^3P-y^5S^o$ (258)
5429.139	A	6	2.33	4.61	2-2	$c^3P-w^3P^o$
5448.882	B	(0)	2.32	4.59	1-1	(259)
5474.449	B	(1)	2.33	4.59	2-1	
5473.517	B	(1)	2.32	4.58	1-0	
5404.023	E	2	2.32	4.61	1-2	
*5446.593	B	2	2.32	4.59	0-1	
4805.416	A	12	2.33	4.90	2-3	$c^3P-s^3D^o$
4792.482	A	10	2.32	4.90	1-2	(260)
4796.210	B	6	2.32	4.90	0-1	
4812.240	B	5	2.33	4.90	2-2	
4797.983	B	5	2.32	4.90	1-1	
4637.887	B	8	2.33	5.00	2-2	$c^3P-v^3P^o$
4637.209	E	2	2.32	4.99	1-1	(261)
4655.712	B	3	2.33	4.99	2-1	
4640.431	E	2	2.32	4.98	1-0	
4619.525	E	3	2.32	5.00	1-2	
4635.539	E	3	2.32	4.99	0-1	
*4558.092	B	2	2.33	5.04	2-3	$c^3P-r^3D^o$
4576.551	E	(0)	2.32	5.02	1-2	(262)
4598.99	P		2.32	5.01	0-1	
4594.51	P		2.33	5.02	2-2	
*4558.092	B	2	2.33	5.04	2-1	$c^3P-x^3S^o$ (263)
6012.53	H	(1)	2.42	4.47	4-5	$z^3F^o-b^3G$
5982.52	H	(0)	2.40	4.46	3-4	(264)
5971.07	H	(0)	2.39	4.45	2-3	
5477.695	A	8	2.42	4.67	4-4	$z^3F^o-e^3F$
5481.426	A	6	2.40	4.65	3-3	(265)
5488.210	A	5	2.39	4.63	2-2	
5527.606	B	(1)	2.42	4.65	4-3	
5518.11	P		2.40	4.63	3-2	
5432.318	B	(0)	2.40	4.67	3-4	
5451.965	B	(1)	2.39	4.65	2-3	
4563.437	B	5	2.42	5.12	4-5	$z^3F^o-e^3G$
4555.069	B	3	2.40	5.11	3-4	(266)
4570.906	B	3n	2.39	5.09	2-3	
4586.95	P		2.42	5.11	4-4	
4436.64	H	(1)	2.42	5.20	4-4	$z^3F^o-g^3F$
4430.033	B	3	2.40	5.18	3-3	(267)
4433.578	B	3	2.39	5.17	2-2	
3708.625	B	4n	2.42	5.74	4-4	$z^3F^o-h^3F$ (268)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ti I continued						
5648.570	A	5	2.48	4.87	3-4	$z^3D^o-e^3F$
5662.891	B	4	2.47	4.65	2-3	(269)
5679.908	B	2	2.46	4.63	1-2	
4548.094	B	2	2.48	5.20	3-4	$z^3D^o-g^3F$
4547.850	E	2	2.47	5.18	2-3	(270)
4557.857	B	2	2.46	5.17	1-2	
3481.675	E	3	2.48	6.03	3-3	$z^3D^o-e^3D$
3481.126	E	3	2.47	6.02	2-2	(271)
3472.793	E	2	2.46	6.02	1-1	
7352.16	E	(1)	2.48	4.18	1-1	$a^1P-z^1P^o$ (272)
6716.679	E	(1)	2.48	4.31	1-1	$a^1P-y^1P^o$ (273)
6677.25	J	(0)	2.48	4.33	1-2	$a^1P-x^1D^o$ (274)
•5511.795	B	2	2.48	4.72	1-0	$a^1P-z^1S^o$ (275)
5206.059	B	5	2.48	4.85	1-1	$a^1P-w^1P^o$ (276)
4372.383	A	3	2.46	5.30	1-1	$a^1P-v^1P^o$ (277)
4237.654	B	5	2.46	5.40	1-2	$a^1P-w^1D^o$ (278)
4211.729	E	4	2.48	5.41	1-2	$a^1P-v^1D^o$ (279)
5741.192	B	1	2.49	4.64	2-3	$b^1D-x^1F^o$ (280)
5298.439	A	4	2.49	4.82	2-1	$b^1D-x^1P^o$ (281)
5246.143	B	2	2.49	4.85	2-1	$b^1D-w^1P^o$ (282)
4975.344	A	10	2.49	4.96	2-3	$b^1D-w^1F^o$ (283)
4237.889	A	7	2.49	5.41	2-2	$b^1D-v^1D^o$ (284)
7189.89	E	2	2.57	4.28	5-5	$a^1H-z^1H^o$ (285)
6575.180	E	3	2.57	4.44	5-4	$a^1H-y^1G^o$ (286)
5503.897	A	6	2.57	4.81	5-4	$a^1H-x^1G^o$ (287)
5120.420	A	12	2.57	4.98	5-8	$a^1H-z^1I^o$ (288)
4938.283	A	8	2.57	5.07	5-5	$a^1H-y^1H^o$ (289)
4369.682	A	5n	2.57	5.39	5-4	$a^1H-v^1G^o$ (290)
4278.231	B	7	2.57	5.45	5-5	$a^1H-x^1H^o$ (291)
3926.319	B	10	2.57	5.71	5-4	$a^1H-u^1G^o$ (292)
6215.212	B	20	2.68	4.87	5-4	$z^3G^o-e^3F$
6220.460	B	12	2.87	4.65	4-3	(293)
6221.41	E	8	2.65	4.83	3-2	
5064.068	B	4	2.68	5.12	5-5	$z^3G^o-e^3G$
•5054.070	B	3	2.87	5.11	4-4	(294)
5068.332	B	3	2.85	5.09	3-3	
4908.46	P		2.68	5.20	5-4	$z^3G^o-g^3F$
4900.625	E	(7)	2.87	5.16	4-3	(295)
4900.03	P		2.85	5.17	3-2	
4127.531	A	15	2.68	5.87	5-6	$z^3G^o-f^3H$
4123.559	B	10	2.67	5.86	4-5	(296)
4122.143	A	10	2.65	5.84	3-4	
4149.445	B	(0)	2.68	5.66	5-5	
4142.480	B	2	2.67	5.84	4-4	
4032.628	B	3n	2.88	5.74	5-4	$z^3G^o-h^3F$ (297)
5259.976	B	3	2.73	5.07	2-3	$z^1D^o-e^1F$ (298)
4068.981	B	4n	2.73	5.78	2-3	$z^1D^o-f^1F$ (299)
5351.072	B	4	2.77	5.07	3-3	$z^1F^o-e^1F$ (300)
4224.795	B	5	2.77	5.89	3-4	$z^1F^o-e^1G$ (301)
4123.287	B	5n	2.77	5.78	3-3	$z^1F^o-f^1F$ (302)
3608.082	E	1	2.77	6.19	3-2	$z^1F^o-f^1D$ (303)
6098.855	B	7	3.05	5.07	4-3	$z^1G^o-e^1F$ (304)
4808.531	B	5	3.05	5.82	4-5	$z^1G^o-e^1H$ (305)
4688.392	B	3	3.08	5.71	1-2	$z^3S^o-e^3P$ (306)
7069.11	I	2	3.17	4.91	3-4	$y^3D^o-f^3F$
7039.38	E	(1)	3.14	4.89	2-3	(307)
7035.88	E	(2)	3.13	4.88	1-2	
7998.53	E	(3)	3.32	4.87	6-5	$y^5G^o-f^5F$
•7978.88	E	(4)	3.31	4.85	5-4	(308)
7961.58	E	(2)	3.29	4.84	4-3	
7943.93	E	(1n?)	3.28	4.83	3-2	
7926.37	E	(1)	3.27	4.83	2-1	
7909.34	P		3.30	4.87	5-5	
5804.265	A	5n	3.32	5.45	6-7	$y^5G^o-f^5H$
5785.979	A	5n	3.31	5.44	5-8	(309)
5774.037	A	5n	3.29	5.43	4-5	
5786.330	A	4n	3.28	5.42	3-4	
5782.295	B	4n	3.27	5.41	2-3	
Ti I continued						
5832.47	H	(1)	3.32	5.44	6-8	$y^5G^o-f^5H$
5812.827	B	(1)	3.31	5.43	5-5	cont
5797.445	B	(1)	3.29	5.42	4-4	
5785.67	E	(1)	3.28	5.41	3-3	
10896.10	C	8	3.34	4.47	4-5	$x^3F^o-b^3G$†
10820.31	C	5	3.32	4.46	3-4	(310)
10793.85	C	3	3.31	4.45	2-3	
5995.685	E	2	3.45	5.50	2-2	$y^1D^o-e^1D$ (311)
9506.04	D	25	3.57	4.87	5-5	$y^5F^o-f^5F$†
9508.49	D	20	3.55	4.85	4-4	(312)
9510.81	D	12	3.54	4.84	3-3	
9511.60	D	8	3.54	4.83	2-2	
9511.55	D	10	3.53	4.83	1-1	
•8496.03	D	60	3.68	5.13	3-3	$a^1F-v^1F^o$ (313)
7214.97	H	(0)	3.68	5.39	3-4	$a^1F-v^1G^o$ (314)
10147.09	C	4	3.90	5.12	5-5	$w^3G^o-e^3G$
10119.20	C	3	3.89	5.11	4-4	(315)
10179.92	C	3	3.87	5.09	3-3	
5341.492	B	1	4.31	8.62	1-1	$y^1P^o-e^1P$ (316)

Strongest Unclassified Lines of **Ti I**

11609.41	C	3	
11539.50	C	5	
11403.89	C	6	
11381.53	C	7	
11230.91	C	5	
10145.48	C	8	
9981.18	D	5	
8841.47	D	40	
8418.70	D	10	
8585.62	E	4	V
5369.635	A	4	III
4599.226	A	5	IV
4539.096	B	3	IV
4511.176	B	3	IV
4495.006	B	4	III
4129.186	B	4	III
4121.637	B	4	III
4027.426	B	4	IV
3985.246	B	3	III
3861.079	B	3n	IV?
3846.438	B	6n	IV
3836.763	B	5	IV
3833.874	B	4	III
3833.188	B	4	IV
3735.660	B	4n	IV
3715.371	B	3n	IV
3700.055	B	4n	IV
3844.699	E	4	IV
3633.458	E	5	IV
3631.999	E	3	IV
3585.852	E	4	III?
3556.184	E	3	IV
3507.426	E	3	IV
3459.431	E	3	III
3435.432	E	3	III
•3130.804§	A	15?	IV
3007.487	E	4N	IV

Ti II I P 13.8 Anal A List A Oct 1940

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3349.399//	A	125	0.05	3.73	4½-5½	$a^4F-z^4G^o$
3381.213	A	125	0.03	3.70	3½-4½	(1)
3372.800	C	100	0.01	3.87	2½-3½	
3383.781	A	125	0.00	3.65	1½-2½	
3380.278	A	30	0.05	3.70	4½-4½	
3387.834	A	50	0.03	3.87	3½-3½	
3394.574	A	40	0.01	3.85	2½-2½	
3407.205	C	3	0.05	3.87	4½-3½	
3409.809	C	4	0.03	3.85	3½-2½	
3234.517	A	75	0.05	3.88	4½-4½	$a^4F-z^4F^o$
3236.573	A	70	0.03	3.84	3½-3½	(2)
3239.037	A	60	0.01	3.82	2½-2½	
3241.984	A	60	0.00	3.81	1½-1½	
3254.250	C	30	0.05	3.84	4½-3½	
3252.914	C	40	0.03	3.82	3½-2½	
3251.911	C	30	0.01	3.81	2½-1½	
3217.056	A	30	0.03	3.86	3½-4½	
3222.843	A	35	0.01	3.84	2½-3½	
3229.193	C	40	0.00	3.82	1½-2½	
3214.750	C	4	0.05	3.89	4½-3½	$a^4F-z^2F^o$
3228.771	C	2	0.03	3.85	3½-2½	(3)
3197.518	C	2	0.03	3.89	3½-3½	
•3213.145§	C	1	0.01	3.85	2½-2½	
3184.09	O	2	0.01	3.89	2½-3½	
3203.435	O	3	0.00	3.85	1½-2½	
3143.756	C	10	0.03	3.95	3½-2½	$a^4F-z^2D^o$
3157.397	C	2	0.01	3.92	2½-1½	(4)
•3130.804§	A	15	0.01	3.95	2½-2½	
3148.033	A	12	0.00	3.92	1½-1½	
3121.599	C	1	0.00	3.95	1½-2½	
Ti II continued						
3088.027	A	75	0.05	4.05	4½-3½	$a^4F-z^4D^o$
3078.645	A	50	0.03	4.04	3½-3½	(5)
3075.225	A	40	0.01	4.02	2½-1½	
3072.971	C	40	0.00	4.02	1½- ½	
3072.107	C	30	0.03	4.05	3½-3½	
3066.220	C	30	0.01	4.04	2½-2½	
3066.354	C	20	0.00	4.02	1½-1½	
•3059.741	C	4	0.01	4.05	2½-3½	
3057.395	C	10	0.00	4.04	1½-2½	
3444.308	A	30	0.15	3.73	4½-5½	$b^4F-z^4G^o$
3461.496	A	20	0.13	3.70	3½-4½	(6)
3477.161	A	15	0.12	3.87	2½-3½	
3491.053	A	10	0.11	3.65	1½-2½	
3476.982	C	tr	0.15	3.70	4½-4½	
3489.739	C	2	0.13	3.87	3½-3½	
3500.340	C	2	0.12	3.65	2½-2½	
3505.45	P		0.15	3.87	4½-3½	
3513.09	F	tr	0.13	3.65	3½-2½	
3332.936	A	75	0.15	3.86	4½-4½	$b^4F-z^4F^o$
3329.455	A	70	0.13	3.84	3½-3½	(7)
3335.192	A	40	0.12	3.82	2½-2½	
3340.344	A	35	0.11	3.81	1½-1½	
3343.770	C	10	0.15	3.84	4½-3½	
3346.724	D	15	0.13	3.82	3½-2½	
3348.844	C	10?	0.12	3.81	2½-1½	
3308.608	C	8	0.13	3.86	3½-4½	
3316.024	A	10	0.12	3.84	2½-3½	
3326.762	A	20	0.11	3.82	1½-2½	
3302.098	C	0	0.15	3.89	4½-3½	$b^4F-z^2F^o$
3319.083	C	(1)	0.13	3.85	3½-2½	(8)
3288.142	C	0n	0.13	3.89	3½-3½	
3307.717	C	tr	0.12	3.85	2½-2½	
3276.998	C	tr	0.12	3.89	2½-3½	
m3299.44	P	Ti	0.11	3.85	1½-2½	
3231.315	C	4	0.13	3.95	3½-2½	$b^4F-z^2D^o$
3248.70	P		0.12	3.92	2½-1½	(9)
3220.467	C	1	0.12	3.95	2½-2½	
3240.71	C	1	0.11	3.92	1½-1½	
3212.70	P		0.11	3.95	1½-2½	
3168.519	A	40	0.15	4.05	4½-3½	$b^4F-z^4D^o$
3182.570	C	35	0.13	4.04	3½-2½	(10)
3161.755	A	30	0.12	4.02	2½-1½	
3161.205	C	25	0.11	4.02	1½- ½	
3155.670	C	12	0.13	4.05	3½-3½	
3152.251	C	15	0.12	4.04	2½-2½	
3154.195	C	12	0.11	4.02	1½-1½	
•3145.402	C	0	0.12	4.05	2½-3½?	
m3144.74	P	Ti+	0.11	4.04	1½-2½	
3987.63	P		0.60	3.70	3½-4½	$a^2F-z^4G^o$
3981.996	B	tr	0.57	3.67	2½-3½	(11)
4025.136	C	2	0.60	3.67	3½-3½	
4012.372	B	4	0.57	3.65	2½-2½	
4056.212	C	(1)	0.60	3.85	3½-2½	
3786.33	P		0.60	3.88	3½-4½	$a^2F-z^4F^o$
3774.650	C	(3n)	0.57	3.84	2½-3½	(12)
3813.390	B	2	0.60	3.84	3½-3½	
3796.899	B	2n	0.57	3.82	2½-2½	
3836.085	B	1	0.60	3.82	3½-2½	
3814.580	B	4	0.57	3.81	2½-1½	
3759.291	A	200	0.60	3.89	3½-3½	$a^2F-z^2F^o$
3761.320	A	200	0.57	3.85	2½-2½	(13)
3799.81	F	tr	0.60	3.85	3½-2½	
3721.832	B	15	0.57	3.89	2½-3½	
•3685.192	A	250	0.60 0.57	3.95 3.92	3½-2½ 2½-1½	$a^2F-z^2D^o$ (14)
3649.01	P		0.57	3.95	2½-2½	
3587.130	C	12	0.60	4.05	3½-3½	$a^2F-z^4D^o$
3561.575	C	3	0.57	4.04	2½-2½	(15)
3596.048	A	60	0.60	4.04	3½-3½	
3573.737	C	20	0.57	4.02	2½-1½	
3552.85	P		0.57	4.05	2½-3½	
3349.035	C	75	0.60	4.29	3½-4½	$a^2F-z^2G^o$
•3341.675§	A	100	0.57	4.28	2½-3½	(16)
3372.208	C	10?	0.60	4.28	3½-3½	
4762.77	F	(1)	1.08	3.67	2½-3½	$a^2D-z^4G^o$
4798.535	C	(2)	1.06	3.65	1½-2½	(17)
4808.33	P		1.08	3.85	2½-2½	
4469.160	C	tr	1.06	3.84	2½-3½	$a^2D-z^4F^o$
4493.53	C	(1)	1.08	3.82	1½-2½	(18)
4500.32	P		1.08	3.82	2½-2½	
4518.30	P		1.08	3.81	1½-1½	
4525.21	P		1.08	3.81	2½-1½	
4395.031	A	60	1.08	3.89	2½-3½	$a^2D-z^2F^o$
4443.602	A	50	1.08	3.85	1½-2½	(19)
4450.467	B	10	1.08	3.85	2½-2½	
4294.101	A	40	1.08	3.95	2½-2½	$a^2D-z^2D^o$
4337.918	A	50	1.08	3.92	1½-1½	(20)
4344.291	B	2	1.08	3.92	2½-1½	
4287.893	B	2	1.08	3.95	1½-2½	
4181.524	B	1	1.08	4.05	2½-3½	$a^2D-z^4D^o$
4187.87	P		1.08	4.04	1½-2½	(21)
4173.537	B	1	1.08	4.04	2½-2½	
4184.329	C	0	1.08	4.02	1½-1½	
4190.29	F	(1)	1.08	4.02	2½-1½	
4198.84	P		1.08	4.02	1½- ½	
3480.897	C	0	1.08	4.82	1½- ½	$a^2D-z^2S^o$ (22)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ti II continued						
m3252.94	P	Ti+	1.08	4.87	2½-3½	a²D-y²D°
3275.293	C	3	1.08	4.84	1½-1½	(23)
*3278.922§	C	35	1.08	4.84	2½-1½	
3249.370	C	2	1.08	4.87	1½-2½	
3239.664	C	30	1.08	4.89	2½-1½	a²D-z²P°
3238.605	C	30	1.08	4.90	1½- ½	(24)
3238.122	C	20	1.08	4.89	1½-1½	
3195.717	C	3	1.08	4.94	2½-1½	a²D-z⁴S°
3192.26	C	2	1.08	4.94	1½-1½	(25)
3190.874	C	30	1.08	4.95	2½-3½	a²D-y²F°
3202.535	A	40	1.08	4.93	1½-2½	(26)
3205.990	C	1	1.08	4.93	2½-2½	
3118.824	C	2	1.08	5.04	2½-3½	a²D-y⁴D°
3138.77	F	tr	1.08	5.01	1½-2½	(27)
3140.04	P		1.08	5.01	2½-2½	
3152.14	P		1.08	4.99	1½-1½	
3155.50	P		1.08	4.99	2½-1½	
3181.66	P		1.08	4.98	1½- ½	
2987.40	F	1	1.08	5.21	2½-2½	a²D-z⁴P°
2996.88	P		1.08	5.19	1½-1½	(28)
2999.93	P		1.08	5.19	2½-1½	
3003.37	P		1.08	5.18	1½- ½	
2984.35	P		1.08	5.21	1½-2½	
4732.98	P		1.13	3.73	4½-5½	a²G-z⁴G°
4787.30	P		1.11	3.70	3½-4½	(29)
4794.84	P		1.13	3.70	4½-4½	
4831.01	P		1.11	3.67	3½-3½	
4849.18	P		1.13	3.67	4½-3½	
4865.620	C	tr	1.11	3.85	3½-2½	
4508.74	P		1.13	3.88	4½-4½	a²G-z⁴F°
4520.37	P		1.11	3.84	3½-3½	(30)
4545.144	C	tr	1.13	3.84	4½-3½	
4552.25	P		1.11	3.82	3½-2½	
4482.40	P		1.11	3.88	3½-4½	
4468.493	A	50	1.13	3.89	4½-3½	a²G-z²F°
4501.370	A	40	1.11	3.85	3½-2½	(31)
4444.559	B	1	1.11	3.89	3½-3½	
4341.369	B	1	1.11	3.95	3½-2½	a²G-z²D° (32)
4237.34	P		1.13	4.05	4½-3½	a²G-z⁴D°
4218.18	P		1.11	4.04	3½-2½	(33)
4205.92	P		1.11	4.05	3½-3½	
3900.546	A	70	1.13	4.29	4½-4½	a²G-z²G°
3913.464	A	60	1.11	4.26	3½-3½	(34)
3932.007	B	2	1.13	4.26	4½-3½	
3882.28	P		1.11	4.29	3½-4½	
3279.995	C	4	1.11	4.87	3½-2½	a²G-y²D° (35)
3229.397	A	35	1.13	4.95	4½-3½	a²G-y²F°
3232.280	C	30	1.11	4.93	3½-2½	(36)
3218.88	P		1.11	4.95	3½-3½	
3155.63	P		1.13	5.04	4½-3½	a²G-y⁴D°
3165.24	P		1.11	5.01	3½-2½	(37)
3143.68	P		1.11	5.04	3½-3½	
m4629.29	P	Ti	1.18	3.84	2½-3½	a⁴P-z⁴F°
4636.345	C	(1)	1.18	3.82	1½-2½	(38)
m4655.75	P	Ti	1.18	3.81	½-1½	
4662.74	P		1.18	3.82	2½-2½	
4682.71	P		1.18	3.81	1½-1½	
4689.46	P		1.18	3.81	2½-1½	
4549.82	P		1.18	3.89	2½-3½	a⁴P-z²F°
4583.443	C	(1)	1.18	3.85	1½-2½	(39)
4609.28	P		1.18	3.85	2½-2½	
4441.73	P		1.18	3.95	2½-2½	a⁴P-z²D°
4470.864	B	tr	1.18	3.93	1½-1½	(40)
4495.46	P		1.18	3.93	2½-1½	
4417.718	B	40	1.18	3.95	1½-2½	
4464.458	B	1	1.16	3.93	½-1½	
4300.052	B	60	1.18	4.05	2½-3½	a⁴P-z⁴D°
4290.222	B	50	1.16	4.04	1½-2½	(41)
4301.928	B	15	1.18	4.03	½-1½	
4312.881	A	35	1.18	4.04	2½-2½	
4307.900	A	40	1.16	4.03	1½-1½	
4314.979	B	40	1.18	4.03	½- ½	
4330.708	B	0	1.18	4.03	2½-1½	
4320.985	B	1	1.16	4.03	1½- ½	
3588.00	F	8	1.18	4.62	1½- ½	a⁴P-z²S°
3561.910	C	1	1.18	4.62	½- ½	(42)
3338.998	C	tr	1.18	4.87	2½-2½	a⁴P-y²D°
*3350.548§	C	1	1.16	4.84	1½-1½	(43)
3364.30	P		1.18	4.84	2½-1½	
3323.39	P		1.18	4.87	1½-2½	
3348.91	P		1.16	4.84	½-1½	
m3322.98	P	Ti+	1.18	4.89	2½-1½	a⁴P-z²P°
3301.71	F	(2)	1.16	4.90	1½- ½	(44)
m3309.53	P	Ti	1.16	4.89	1½-1½	
3298.21	F	(1)	1.18	4.90	½- ½	
3308.053	C	tr	1.18	4.89	½-1½	
3278.774	C	5	1.18	4.94	2½-1½	a⁴P-z⁴S°
3283.688	C	4	1.18	4.94	1½-1½	(45)
*3260.259§	C	3	1.18	4.94	½-1½	
3195.994	C	tr	1.18	5.04	2½-3½	a⁴P-y⁴D°
3205.64	P		1.18	5.01	1½-2½	(46)
3218.44	P		1.18	4.99	½-1½	
Ti II continued						
m3218.26	P	Ti+	1.18	5.01	2½-2½	a⁴P-y⁴D°
3221.76	P		1.18	4.99	1½-1½	cont
3228.36	P		1.16	4.98	½- ½	
m3234.50	P	Ti+	1.18	4.99	2½-1½	
3231.71	P		1.16	4.98	1½- ½	
3058.090	C	50	1.18	5.21	2½-2½	a⁴P-z⁴P°
*3059.741	C	6	1.16	5.19	1½-1½	(47)
3063.502	C	4	1.16	5.18	½- ½	
3071.242	C	15	1.18	5.19	2½-1½	
3066.514	C	3	1.16	5.18	1½- ½	
3046.685	C	30	1.16	5.21	1½-2½	
3056.740	C	15	1.16	5.19	½-1½	
4764.535	C	(1)	1.23	3.82	1½-2½	a²P-z⁴F°
4783.84	P		1.22	3.81	½-1½	(48)
4792.39	P		1.23	3.81	1½-1½	
4708.663	C	tr	1.23	3.85	1½-2½	a²P-z²F° (49)
4533.988	B	30	1.23	3.95	1½-2½	a²P-z²D°
4583.761	A	30	1.22	3.92	½-1½	(50)
4589.961	B	2	1.23	3.92	1½-1½	
4399.787	A	35	1.23	4.04	1½-2½	a²P-z⁴D°
4394.057	B	2	1.22	4.02	½-1½	(51)
4418.340	B	1	1.23	4.02	1½-1½	
4407.678	C	1	1.22	4.02	½- ½	
4432.089	C	tr	1.23	4.02	1½- ½	
3841.330	A	100	1.23	4.82	1½- ½	a²P-z²S°
3624.826	A	70	1.22	4.82	½- ½	(52)
3388.755	C	8	1.23	4.87	1½-2½	a²P-y²D°
3402.422	C	8	1.22	4.84	½-1½	(53)
3416.957	C	2	1.23	4.84	1½-1½	
3374.352	C	8	1.23	4.89	1½-1½	a²P-z²P°
3352.071	C	5	1.22	4.90	½- ½	(54)
*3366.178§	C	8	1.23	4.90	1½- ½	
3360.16	P		1.22	4.89	½-1½	
3337.85	F	2	1.23	4.93	1½-2½	a²P-y²F° (55)
3328.68	P		1.23	4.94	1½-1½	a²P-z⁴S°
3312.90	P		1.22	4.94	½-1½	(56)
3286.43	F	(1)	1.23	5.01	1½-2½	a²P-y⁴D°
3269.77	F	(1)	1.22	4.99	½-1½	(57)
3283.14	P		1.23	4.99	1½-1½	
m3279.97	P	Ti+	1.22	4.98	½- ½	
3293.48	P		1.23	4.98	1½- ½	
m3101.52	P	Ti	1.23	5.21	1½-2½	a²P-z⁴P°
3102.975	C	2	1.22	5.19	½-1½	(58)
3115.088	C	1	1.23	5.19	1½-1½	
3109.93	P		1.22	5.18	½- ½	
3122.065	C	2	1.23	5.18	1½- ½	
4657.210	C	tr	1.24	3.89	2½-3½	b⁴P-z²F°
4698.67	P		1.23	3.85	1½-2½	(59)
4719.515	C	(1)	1.24	3.85	2½-2½	
4544.009	C	tr	1.24	3.95	2½-2½	b⁴P-z²D°
4580.458	C	(1)	1.23	3.92	1½-1½	(60)
4600.28	P		1.24	3.92	2½-1½	
4524.732	C	(1?)	1.23	3.95	1½-2½	
4568.312	C	(1)	1.22	3.92	½-1½	
4395.848	B	2	1.24	4.05	2½-3½	b⁴P-z⁴D°
4390.977	B	tr	1.23	4.04	1½-2½	(61)
4398.314	C	(1)	1.22	4.02	½-1½	
4409.22	C	tr	1.24	4.04	2½-2½	
4409.519	C	tr	1.23	4.02	1½-1½	
4411.938	C	(1)	1.22	4.02	½- ½	
4427.90	P		1.24	4.02	2½-1½	
4423.22	P		1.23	4.02	1½- ½	
3635.38	P		1.23	4.62	1½- ½	b⁴P-z²S°
3627.71	C	(1)	1.22	4.62	½- ½	(62)
3394.37	P		1.24	4.87	2½-2½	b⁴P-y²D°
m3411.88	P	Ti	1.23	4.84	1½-1½	(63)
3422.661	C	(1)	1.24	4.84	2½-1½	
3383.57	P		1.23	4.87	1½-2½	
3404.97	C	(1)	1.22	4.84	½-1½	
3379.930	C	in	1.24	4.89	2½-1½	b⁴P-z²P°
m3381.07	P	Ti	1.23	4.90	1½- ½	(64)
3369.212	C	2	1.23	4.89	1½-1½	
3354.54	P		1.22	4.90	½- ½	
3362.853	C	1	1.22	4.89	½-1½	
3332.111	A	30	1.24	4.94	2½-1½	b⁴P-z⁴S°
3321.700	C	25	1.23	4.94	1½-1½	(65)
3315.324	C	10	1.22	4.94	½-1½	
*3248.602§	C	50	1.24	5.04	2½-3½	b⁴P-y⁴D°
*3261.598	A	60	1.23	5.01	1½-2½	(66)
3272.080	C	25	1.22	4.99	½-1½	
3271.652	C	25	1.24	5.01	2½-2½	
3278.290	C	30	1.23	4.99	1½-1½	
3282.329	C	25	1.22	4.98	½- ½	
3288.428	C	5	1.24	4.99	2½-1½	
3288.575	C	5	1.23	4.98	1½- ½	
3108.234	C	35	1.24	5.21	2½-2½	b⁴P-z⁴P°
3110.820	O	20	1.23	5.19	1½-1½	(87)
3112.050	C	10	1.22	5.18	½- ½	
3119.800	C	15	1.24	5.19	2½-1½	
3117.669	C	20	1.23	5.18	1½- ½	
3097.188	C	25	1.23	5.21	1½-2½	
3105.084	C	20	1.22	5.19	½-1½	
Ti II continued						
5446.46	P		1.57	3.84	2½-3½	b²D-z⁴F°
5454.05	P		1.56	3.82	1½-2½	(68)
5492.82	P		1.57	3.82	2½-2½	
5490.85	P		1.56	3.81	1½-1½	
5529.94	P		1.57	3.81	2½-1½	
5336.809	B	4	1.57	3.89	2½-3½	b²D-z²F°
5381.020	B	1	1.56	3.85	1½-2½	(69)
5418.802	B	0	1.57	3.85	2½-2½	
5188.700	C	6	1.57	3.95	2½-2½	b²D-z²D°
5226.534	B	5	1.56	3.92	1½-1½	(70)
5262.104	C	0	1.57	3.92	2½-1½	
5154.061	B	0	1.56	3.95	1½-2½	
4995.89	P		1.57	4.05	2½-3½	b²D-z⁴D°
4981.38	P		1.56	4.04	1½-2½	(71)
5013.712	C	tr	1.57	4.04	2½-2½	
5005.18	P		1.56	4.02	1½-1½	
5037.81	P		1.57	4.02	2½-1½	
m5022.82	P	Ti	1.56	4.02	1½- ½	
3741.833	B	50	1.57	4.87	2½-2½	b²D-y²D°
3757.684	B	30	1.56	4.84	1½-1½	(72)
3776.082	B	8	1.57	4.84	2½-1½	
3723.631	C	tr	1.56	4.87	1½-2½	
3724.106	C	1	1.57	4.89	2½-1½	b²D-z²P°
3696.39	C	(1)	1.56	4.90	1½- ½	(73)
3706.219	B	20	1.56	4.89	1½-1½	
3868.11	P		1.57	4.94	2½-1½	b²D-z⁴S°
3848.80	P		1.56	4.94	1½-1½	(74)
3659.785	C	60	1.57	4.95	2½-3½	b²D-y²F°
3662.237	C	40	1.56	4.93	1½-2½	(75)
3679.673	C	(3)	1.57	4.93	2½-2½	
3565.326	C	3	1.57	5.04	2½-3½	b²D-y⁴D°
3576.38	F	(0n)	1.56	5.01	1½-2½	(76)
3593.093	C	2	1.57	5.01	2½-2½	
3596.55	C	tr	1.56	4.99	1½-1½	
3613.30	P		1.57	4.99	2½-1½	
3608.89	P		1.56	4.98	1½- ½	
3110.095	C	8	1.57	5.54	2½-2½	b²D-x²D°
3096.424	C	2	1.56	5.54	1½-1½	(77)
3108.927	C	0	1.57	5.54	2½-1½	
3097.626	C	1	1.56	5.54	1½-2½	
3048.766	C	6	1.57	5.62	2½-1½	b²D-y²P°
3043.851	C	5	1.56	5.61	1½- ½	(78)
3036.784	C	1	1.56	5.62	1½-1½	
5723.87	P		1.58	3.73	5½-5½	a²H-z⁴G°
5781.73	P		1.56	3.70	4½-4½	(79)
5814.62	P		1.58	3.70	5½-4½	
5860.92	P		1.56	3.67	4½-3½	
5691.99	P		1.58	3.73	4½-5½	
5396.3	F	(1)	1.58	3.86	5½-4½	a²H-z⁴F°
5422.47	F	(1)	1.56	3.84	4½-3½	(80)
5367.95	P		1.56	3.86	4½-4½	
5313.76	P		1.56	3.89	4½-3½	a²H-z²F° (81)
4549.622	A	60n	1.58	4.29	5½-4½	a²H-z²G°
4571.971	A	50n	1.56	4.26	4½-3½	(82)
4529.465	C	1	1.56	4.29	4½-4½	
3648.86	C	(0)	1.56	4.95	4½-3½	a²H-y²F° (83)
3224.241	C	35	1.58	5.40	5½-4½	a²H-y²G°
3218.270	C	25	1.56	5.40	4½-3½	(84)
3214.14	F	1	1.58	5.40	4½-4½	
3017.187	C	50	1.58	5.67	5½-5½	a²H-z²H°
3029.730	C	35	1.56	5.64	4½-4½	(85)
3038.706	C	6	1.58	5.64	5½-4½	
3008.322	C	2	1.58	5.67	4½-5½	
5129.143	B	1	1.88	4.29	4½-4½	b²G-z²G°
5185.90	E	2	1.88	4.26	3½-3½	(86)
5183.72	C	tr	1.88	4.26	4½-3½	
5131.28	P		1.88	4.29	3½-4½	
4028.322	B	7	1.88	4.95	4½-3½	b²G-y²F°
4053.814	B	3	1.88	4.93	3½-2½	(87)
4029.64	P		1.88	4.95	3½-3½	
3504.890	A	80	1.88	5.40	4½-4½	b²G-y²G°
3510.840	A	60	1.88	5.40	3½-3½	(88)
3509.844	C	3	1.88	5.40	4½-3½	
3505.901	C	tr	1.88	5.40	3½-4½	
*3261.598	A	60	1.88	5.67	4½-5½	b²G-z²H°
3287.657	A	40	1.88	5.64	3½-4½	(89)
3286.756	C	0	1.88	5.64	4½-4½	
3103.804	C	50	1.88	5.86	4½-3½	b²G-x²F°
3089.401	C	15	1.88	5.88	3½-2½	(90)
3104.593	C	3	1.88	5.86	3½-3½	
6491.61	P	(2)	2.05	3.95	1½-3½	b²P-z²D°
8559.580	C	(1)	2.04	3.92	½-1½	(91)
6607.02	P		2.05	3.92	1½-1½	
4805.105	B	2	2.05	4.62	1½- ½	b²P-z²S°
4779.988	B	1	2.04	4.62	½- ½	(92)
4374.825	B	1	2.05	4.87	1½-2½	b²P-y²D°
m4400.83	P	Ti	2.04	4.84	½-1½	(93)
4421.949	B	1	2.05	4.84	1½-1½	

Ti II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4350.834	C	1	2.05	4.89	1½-1½	$b^3P-z^2P^o$
4316.807	B	1	2.04	4.90	½- ½	(94)
4337.33	C	(1)	2.05	4.90	1½- ½	
4330.264	B	0	2.04	4.89	½-1½	
4271.94	P		2.05	4.94	1½-1½	$b^3P-z^4S^o$
4252.05	P		2.04	4.94	½-1½	(95)
4173.05	P		2.05	5.01	1½-2½	$b^3P-y^4D^o$
4181.17	P		2.04	4.99	½-1½	(96)
4200.40	P		2.05	4.99	1½-1½	
4197.95	P		2.04	4.98	½- ½	
4217.34	P		2.05	4.98	1½- ½	
3907.65	P		2.05	5.21	1½-2½	$b^3P-z^4P^o$
3912.32	P		2.04	5.19	½-1½	(97)
3929.15	P		2.05	5.19	1½-1½	
3923.39	P		2.04	5.18	½- ½	
3940.32	P		2.05	5.18	1½- ½	
3535.408	A	40	2.05	5.54	1½-2½	$b^3P-x^3D^o$
3520.253	C	20	2.04	5.54	½-1½	(98)
3533.868	C	2	2.05	5.54	1½-1½	
3456.390	C	20	2.05	5.62	1½-1½	$b^3P-y^3P^o$
3452.470	C	4	2.04	5.61	½- ½	(99)
3465.562	C	3	2.05	5.61	1½- ½	
3443.387	C	1	2.04	5.62	½-1½	
8979.34	P		2.58	3.95	3½-2½	$b^3F-z^2D^o$
9252.67	P		2.59	3.92	2½-1½	(100)
9027.90	P		2.59	3.95	2½-2½	
7214.78	P		2.58	4.29	3½-4½	$b^3F-z^2G^o$
7355.46	P		2.59	4.26	2½-3½	(101)
7323.20	P		2.58	4.26	3½-3½	
5379.19	P		2.58	4.87	3½-2½	$b^3F-y^2D^o$
5468.44	P		2.59	4.84	2½-1½	(102)
5396.59	P		2.59	4.87	2½-2½	
5211.544	C	0	2.58	4.95	3½-3½	$b^3F-y^2F^o$
5268.62	C	1	2.59	4.93	2½-2½	(103)
5252.04	P		2.58	4.93	3½-2½	
5227.87	P		2.59	4.95	2½-3½	
4367.657	B	15	2.58	5.40	3½-4½	$b^3F-y^3G^o$
4386.858	B	10	2.59	5.40	2½-3½	(104)
4375.35	P		2.58	5.40	3½-3½	
4163.644	A	40	2.58	5.54	3½-2½	$b^3F-x^3D^o$
4171.897	A	30	2.59	5.54	2½-1½	(105)
•4174.088§	B	(2)	2.59	5.54	2½-2½	
4064.350	B	(1)	2.59	5.62	2½-1½	$b^3F-y^2P^o$ (106)
3761.866	B	15	2.58	5.86	3½-3½	$b^3F-x^3F^o$
3748.010	B	10	2.59	5.88	2½-2½	(107)
3739.6	F	tr	2.58	5.88	3½-2½	
3770.412	C	(1)	2.59	5.86	2½-3½	
6212.30	F	(1)	2.63	4.62	½- ½	$a^2S-z^2S^o$ (108)
5473.517	B	(1)	2.63	4.89	½-1½	$a^2S-z^2P^o$
5452.03	F	(1)	2.63	4.90	½- ½	(109)
4822.39	P		2.63	5.19	½-1½	$a^2S-z^4P^o$
4839.251	C	(1)	2.63	5.18	½- ½	(110)
3144.730	C	1	2.63	6.56	½-1½	$a^2S-x^2P^o$
•3145.402	C	0	2.83	6.58	½- ½	(111)
6717.911	C	(1n)	3.11	4.95	2½-3½	$c^2D-y^2F^o$
6680.26	F	(1)	3.08	4.93	1½-2½	(112)
6785.25	P		3.11	4.93	2½-2½	
5072.30	E	2	3.11	5.54	2½-2½	$c^2D-x^2D^o$
5010.202	C	tr	3.08	5.54	1½-1½	(113)
5069.12	F	tr	3.11	5.54	2½-1½	
5013.38	P		3.08	5.54	1½-2½	
4911.205	B	0	3.11	5.62	2½-1½	$c^2D-y^3P^o$
4874.025	B	tr	3.08	5.61	1½- ½	(114)
4855.95	P		3.08	5.62	1½-1½	
4488.319	B	15	3.11	5.86	2½-3½	$c^2D-x^2F^o$
4411.080	B	15	3.08	5.88	1½-2½	(115)
4456.650	C	tr	3.11	5.88	2½-2½	
3644.87	P		3.11	8.50	2½-3½	$c^2D-x^4D^o$
3633.99	P		3.08	6.48	1½-2½	(118)
3664.86	P		3.11	6.48	2½-2½	
3635.64	P		3.08	8.48	1½-1½	
3666.592	C	(0n)	3.11	8.48	2½-1½	
3652.81	P		3.08	6.46	1½- ½	
3578.687	C	(0)	3.11	8.56	2½-1½	$c^2D-x^2P^o$
3550.19	P		3.08	6.56	1½- ½	(117)
3549.27	P		3.08	8.56	1½-1½	
3524.87	C	tr	3.11	8.81	2½-2½	$c^2D-w^2D^o$
3491.19	P		3.08	6.62	1½-1½	(118)
3519.67	P		3.11	6.62	2½-1½	
3496.29	P		3.08	8.61	1½-2½	
3090.051	C	8n	3.73	7.73	5½-4½	$z^4G^o-e^4F$
3081.575	C	5n	3.70	7.70	4½-3½	(119)
3072.54	E	(0n)	3.67	7.69	3½-2½	
3063.280	C	2	3.85	7.68	2½-1½	
3194.56	C	8n?	3.86	7.73	4½-4½	$z^4F^o-e^4F$
3194.26	C	5n?	3.84	7.70	3½-3½	(120)
3192.68	C	4n	3.82	7.69	2½-2½	
3189.52	C	5n	3.81	7.68	1½-1½	
3213.59	E	tr	3.88	7.70	4½-3½	

Ti II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3208.607	C	1n	3.84	7.69	3½-2½	$z^4F^o-e^4F$
3175.66	C	2n	3.84	7.73	3½-4½	cont
3178.830	C	3n	3.82	7.70	2½-3½	
3180.225	C	2n	3.81	7.69	1½-2½	
•3128.640§	C	10n	3.89	7.83	3½-3½	$z^2F^o-e^2F$
3127.883	C	10n	3.85	7.80	2½-2½	(121)
3155.91	P		3.89	7.80	3½-2½	
3181.84	C	8n	3.95	7.83	2½-3½	$z^2D^o-e^2F$
3182.57	C	6n	3.92	7.80	1½-2½	(122)
2990.16	C	10	3.95	8.08	2½-3½	$z^2D^o-f^2F$
2979.199	C	10	3.92	6.06	1½-2½	(123)
3351.67	C	1n	4.05	7.73	3½-4½	$z^4D^o-e^4F$
3364.9	F	1n	4.04	7.70	2½-3½	(124)
3369.67	E	0n	4.02	7.69	1½-2½	
3483.80	C	4n	4.29	7.83	4½-3½	$z^2G^o-e^2F$
3492.39	F	3n	4.26	7.80	3½-2½	(125)
3459.03	F	(0n)	4.28	7.83	3½-3½	
3022.820	C	15	4.29	8.37	4½-4½	$z^2G^o-e^2G$
3023.86	C	12	4.26	8.35	3½-3½	(126)
3414.02	F	(0)	5.04	8.53	3½-4½	$y^4D^o-f^4F$ (127)

Strongest Unclassified Lines of Ti II

3194.78	C	6n?
3174.80	C	5
3164.91	F	8 V+ ?
3045.085	C	5n

Ti IV I P 43.06 Anal A Liet A Dec 1940

5398.82	A	8	26.22	28.51	½-1½	$5^2S-5^2P^o$
5492.43	A	6	28.22	28.47	½- ½	
3578.44	A	4	28.51	31.98	1½-2½	$5^2P^o-5^2D$
3541.44	A	3	28.47	31.95	½-1½	
4397.37	A	2	29.15	31.96	3½-2½	$4^2F^o-5^2D$
4403.54	A	2	29.15	31.95	2½-1½	
•4647.40	A	3	(34.38	37.04	4½-5½)	$5^2G-6^2H^o$
			34.38	37.04	3½-4½)	

V I I P 8.71 Anal A Liet C Nov 1940

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5632.469	A	1	0.07	2.26	4½-3½	$a^4F-z^6D^o$
•5592.962	A	1	0.04	2.25	3½-2½	(1)
5557.453	A	1	0.02	2.24	2½-1½	
5527.72	A	(1)	0.00	2.23	1½- ½	
5560.548	C	(3)	0.04	2.28	3½-3½	
5535.382	A	(1)	0.02	2.25	2½-2½	
5515.371	B	(4)	0.00	2.24	1½-1½	
5515.083	A	1	0.07	2.31	4½-5½	$a^4F-z^6F^o$?
5498.020	B	(3)	0.04	2.29	3½-4½	(2)
5482.471	B	(1)	0.02	2.27	2½-3½	
4881.554	A	50w	0.07	2.80	4½-3½	$a^4F-z^4D^o$
4875.462	A	40w	0.04	2.57	3½-2½	(3)
4864.741	A	40w	0.02	2.55	2½-1½	
4851.483	A	40w	0.00	2.54	1½- ½	
4827.458	A	30	0.04	2.60	3½-3½	
4831.642	A	35	0.02	2.57	2½-2½	
4832.437	A	30	0.00	2.55	1½-1½	
4784.480	A	5	0.02	2.80	2½-3½	
4799.788	A	5	0.00	2.57	1½-2½	
4594.103	A	60w	0.07	2.75	4½-5½	$a^4F-z^4G^o$
4588.384	A	50w	0.04	2.73	3½-4½	(4)
4580.394	A	40w	0.02	2.71	2½-3½	
4577.173	A	40w	0.00	2.70	1½-2½	
4635.176	A	15	0.07	2.73	4½-4½	
4819.771	A	25	0.04	2.71	3½-3½	
4606.148	A	15	0.02	2.70	2½-2½	
4889.273	B	(2)	0.07	2.71	4½-3½	
4845.971	A	1	0.04	2.70	3½-2½	
4352.872	C	50w	0.07	2.90	4½-4½	$a^4F-z^4F^o$
4341.013	C	40w	0.04	2.68	3½-3½	(5)
4332.823	C	30w	0.02	2.87	2½-2½	
4330.024	C	30w	0.00	2.85	1½-1½	
•4384.722	C	125r	0.07	2.88	4½-3½	
4368.042	C	10	0.04	2.87	3½-2½	
4355.943	C	10	0.02	2.85	2½-1½	
4309.795	C	20	0.04	2.90	3½-4½	
4306.214	C	15	0.02	2.88	2½-3½	
4307.184	C	12	0.00	2.87	1½-2½	
•4234.000	C	12	0.04	2.95	3½-2½	$a^4F-z^2D^o$
4259.312	C	8	0.02	2.91	2½-1½	(6)
4200.89	G	1	0.02	2.95	2½-2½	
•4234.524§	C	8	0.00	2.91	1½-1½	
4176.793	B	(3)	0.00	2.95	1½-2½	
3902.250	C	50r	0.07	3.23	4½-4½	$a^4F-y^4F^o$
3875.075	C	35	0.04	3.22	3½-3½	(7)
3864.862	C	35	0.02	3.21	2½-2½	
3855.370	C	30	0.00	3.20	1½-1½	
•3909.894	C	20	0.07	3.22	4½-3½	
3892.859	C	25	0.04	3.21	3½-2½	
3875.902	C	20	0.02	3.20	2½-1½	

V I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3867.602	C	15	0.04	3.23	3½-4½	$a^4F-y^4F^o$
•3847.323§	E	20	0.02	3.22	2½-3½	cont
3844.438	C	20	0.00	3.21	1½-2½	
3878.086	C	20	0.07	3.25	4½-4½	$a^4F-z^2G^o$
3890.184	C	25	0.04	3.21	3½-3½	(8)
•3925.240	C	10	0.07	3.21	4½-3½	
3841.890	C	5	0.04	3.25	3½-4½	
3862.223	C	12	0.02	3.21	2½-3½	
3855.841	C	60r	0.07	3.27	4½-3½	$a^4F-y^4D^o$
3840.752	C	60r	0.04	3.25	3½-2½	(9)
3828.559	C	60r	0.02	3.24	2½-1½	
3818.244	C	60	0.00	3.23	1½- ½	
3822.009	C	30	0.04	3.27	3½-3½	
3813.492	C	60	0.02	3.25	2½-2½	
3808.521	C	40	0.00	3.24	1½-1½	
•3794.964	C	50	0.02	3.27	2½-3½	
3793.814	C	8	0.00	3.25	1½-2½	
3817.844	C	8	0.07	3.30	4½-4½	$a^4F-y^6D^o$?
3803.902	C	8	0.04	3.28	3½-3½	(10)
3791.326	C	2	0.02	3.27	2½-2½	
•3781.393	C	3	0.00	3.26	1½-1½	
3713.957	C	5	0.07	3.39	4½-3½	$a^4F-z^2F^o$?
3721.358	C	3	0.04	3.36	3½-2½	(11)
3298.139	C	15	0.07	3.81	4½-5½	$a^4F-y^4G^o$
3283.311	C	15	0.04	3.80	3½-4½	(12)
3271.637	C	12	0.02	3.79	2½-3½	
3283.238	C	15	0.00	3.78	1½-2½	
3308.248	C	3	0.07	3.80	4½-4½	
3291.878	C	4	0.04	3.79	3½-3½	
3277.939	C	5	0.02	3.78	2½-2½	
3249.568	C	10	0.07	3.87	4½-4½	$a^4F-x^4F^o$?
3230.646	C	6	0.04	3.88	3½-3½	(13)
3215.375	C	4	0.02	3.86	2½-2½	
3204.198	C	3	0.00	3.85	1½-1½	
•3254.773§	E	10	0.07	3.88	4½-3½	
3185.398	C	200R	0.07	3.94	4½-5½	$a^4F-x^4G^o$
3183.96	F	(125R)	0.04	3.92	3½-4½	(14)
3163.406	C	150R	0.02	3.89	2½-3½	
3183.982	C	(150R)	0.00	3.88	1½-2½	
3207.410	C	20	0.07	3.92	4½-4½	
3202.381	C	25	0.04	3.89	3½-3½	
3198.012	C	20	0.02	3.88	2½-2½	
3226.106	C	4	0.07	3.89	4½-3½	
•3217.121§	E	10	0.04	3.88	3½-2½	
3091.437	C	20	0.07	4.08	4½-3½	$a^4F-x^4D^o$
3091.552	D	15	0.04	4.03	3½-2½	(15)
3093.24	F	8?	0.02	4.01	2½-1½	
3090.40	F	(1)	0.00	3.99	1½- ½	
3089.645	C	30r	0.04	4.06	3½-3½	
•3073.823	C	60r	0.02	4.03	2½-2½	
3080.146	C	8	0.00	4.01	1½-1½	
3052.194	C	20	0.02	4.06	2½-3½	
3060.93	C	2	0.00	4.03	1½-2½	
3063.734	C	12	0.02	4.05	2½-1½	$a^4F-z^2P^o$
3054.89	F	1	0.00	4.04	1½- ½	(16)
3050.890	C	35r	0.00	4.05	1½-1½	
3068.375	C	125R	0.07	4.09	4½-4½	$a^4F-w^4F^o$
3060.460	C	125R	0.04	4.07	3½-3½	(17)
3058.334	C	100R	0.02	4.06	2½-2½	
3053.65	F	80R	0.00	4.04	1½-1½	
3082.109	B	50r	0.07	4.07	4½-3½	
•3073.823	C	60r	0.04	4.06	3½-2½	
3066.51	F	20	0.02	4.04	2½-1½	
3044.938	C	50r	0.04	4.09	3½-4½	
3043.124	C	50r	0.02	4.07	2½-3½	
•3043.555§	C	50r	0.00	4.08	1½-2½	
2977.539	C	25r	0.07	4.21	4½-3½	$a^4F-w^4D^o$?
2982.772	C	30r	0.04	4.21	3½-2½	(18)
2954.332	C	20	0.02	4.19	2½-1½	
2957.33	C	10?	0.04	4.21	3½-3½	
8243.11	A	30	0.30	2.28	4½-4½	$a^6D-z^6D^o$
8251.83	A	30	0.29	2.28	3½-3½	(19)
8258.908	A	8	0.27	2.25	2½-2½	
6258.595	A	8	0.26	2.23	½- ½	
6296.518	A	15	0.30	2.28	4½-3½	
6292.858	A	20	0.29	2.25	3½-2½	
8285.185	A	20	0.27	2.24	2½-1½	
8274.670	A	15	0.27	2.23	1½- ½	
8199.202	A	30	0.29	2.28	3½-4½	
6216.368	A	30	0.27	2.28	3½-3½	
8230.738	A	30	0.27	2.25	1½-3½	
6242.80	A	15	0.26	2.24	½-1½	
8150.132	A	15	0.30	2.31	4½-5½	$a^8D-z^6F^o$
6170.340	A	8	0.29	2.29	3½-4½	(20)
6189.350	A	3	0.27	2.27	2½-3½	
6207.251	A	(5)	0.27	2.25	1½-2½	
6224.26	F		0.28	2.24	½-1½	
6213.874	A	15	0.30	2.29	4½-4½	
8224.507	A	15	0.29	2.27	3½-3½	
6233.187	A	12	0.27	2.25	2½-2½	
6240.137	A	8	0.27	2.24	1½-1½	
6245.214	A	2	0.28	2.24	½- ½	
•8288.641	A	8	(0.30	2.27	4½-3½	
			0.29	2.25	3½-2½	
6286.32	A	7	0.27	2.24	2½-1½	
6281.236	A	5	0.27	2.24	1½- ½	
4460.292	C	50	0.30	3.07	4½-3½	$a^6D-z^8P^o$
4459.760	C	30	0.29	3.05	3½-2½	(21)
4457.479	C	15	0.27	3.04	2½-1½	
4437.837	C	20	0.29	3.07	3½-3½	
4441.883	C	25	0.27	3.05	2½-2½	
4444.207	C	20	0.27	3.04	1½-1½	
4419.935	C	12	0.27	3.07	2½-3½	
4438.515	C	15	0.27	3.05	1½-2½	
4436.138	C	15	0.28	3.04	½-1½	

V I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4379.238//	C	150rw	0.30	3.12	4½-5½	a⁶D-y⁶F°
4384.732	C	125r	0.29	3.10	3½-4½	(23)
4389.974	C	100	0.27	3.09	2½-3½	
4395.228	C	80	0.27	3.07	1½-2½	
4400.575	C	60	0.26	3.07	½-1½	
4408.641	C	80	0.30	3.10	4½-4½	
4407.837	C	70	0.29	3.09	3½-3½	
4408.204	C	70	0.27	3.07	2½-2½	
*4408.511	C	90	0.27	3.07	1½-1½	
			0.28	3.08	½- ½	
4429.798	C	15	0.30	3.09	4½-3½	
4428.005	C	20	0.29	3.07	3½-2½	
4421.573	C	20	0.27	3.07	2½-1½	
4416.474	C	20	0.27	3.06	1½- ½	
*4381.04	G	1	0.29	3.10	3½-2½	a⁸D-z⁴P° †
*4405.011	C	4	0.27	3.08	2½-1½	(23)
4363.525	C	5	0.27	3.10	2½-2½	
4392.074	C	5	0.27	3.08	1½-1½	
4209.857	C	20	0.30	3.23	4½-4½	a⁶D-y⁴F° †
4198.611	C	4	0.29	3.22	3½-3½	(24)
4218.710	C	4	0.30	3.22	4½-3½	
4219.51	G	2	0.29	3.21	3½-2½	
4189.841	C	12	0.29	3.23	3½-4½	
4182.591	C	10	0.27	3.22	2½-3½	
4191.558	C	10	0.27	3.21	1½-2½	
4179.419	C	15	0.30	3.25	4½-4½	a⁶D-z²G° †
4159.688	C	8	0.29	3.25	3½-4½	(25)
4138.386	C	3	0.29	3.27	3½-3½	a⁶D-y⁴D° †
4142.68	G	2	0.27	3.25	2½-3½	(26)
4148.859	C	2	0.27	3.24	1½-1½	
4153.328	C	2	0.26	3.23	½- ½	
4111.785	C	100R	0.30	3.30	4½-4½	a⁶D-y⁸D°
4115.185	C	60	0.29	3.28	3½-3½	(27)
4118.470	C	50	0.27	3.27	2½-2½	
4116.703	C	4	0.27	3.26	1½-1½	
4116.60	P		0.26	3.26	½- ½	
4134.488	C	60	0.30	3.28	4½-3½	
4132.017	C	60	0.29	3.27	3½-2½	
4128.071	C	60	0.27	3.26	2½-1½	
4123.568	C	60	0.27	3.26	1½- ½	
4092.894	C	50	0.29	3.30	3½-4½	
4099.796	C	60	0.27	3.28	2½-3½	
4105.167	C	60	0.27	3.27	1½-2½	
4109.786	C	50	0.28	3.26	½-1½	
3794.964	C	50	0.30	3.55	4½-4½	a⁶D-x⁶D°
3803.474	C	25	0.29	3.53	3½-3½	(28)
3809.597	C	15	0.27	3.51	2½-2½	
3813.45	P	V	0.27	3.50	1½-1½	
3815.514	C	10	0.26	3.50	½- ½	
3819.963	C	15	0.30	3.53	4½-3½	
3822.888	C	15	0.29	3.51	3½-2½	
3823.213	C	15	0.27	3.50	2½-1½	
3821.487	C	15	0.27	3.50	1½- ½	
3778.684	C	25	0.29	3.55	3½-4½	
3790.324	C	20	0.27	3.53	2½-3½	
3799.912	C	25	0.27	3.51	1½-2½	
3807.505	C	20	0.26	3.50	½-1½	
3703.584	C	100	0.30	3.83	4½-3½	a⁶D-y⁸P°
3704.899	C	60	0.29	3.82	3½-2½	(29)
3705.035	C	30	0.27	3.61	2½-1½	
3688.089	C	50	0.29	3.83	3½-3½	
3692.225	C	50	0.27	3.62	2½-2½	
3695.885	C	40	0.27	3.61	1½-1½	
3675.700	C	20	0.27	3.83	2½-3½	
3683.126	C	30	0.27	3.82	1½-2½	
3890.281	C	40	0.26	3.61	½-1½	
8118.80	A	300W	1.08	2.60	3½-3½	a⁴D-z⁴D°
8161.08	A	150w	1.06	2.57	2½-2½	(30)
8188.73	A	100	1.05	2.55	1½-1½	
8198.87	A	80	1.04	2.54	½- ½	
8253.51	A	100w	1.08	2.57	3½-2½	
8255.90	A	100	1.06	2.55	2½-1½	
8241.81	A	60	1.05	2.54	1½- ½	
8027.38	A	100w	1.08	2.60	2½-3½	
8093.48	A	100w	1.05	2.57	1½-2½	
8144.58	A	50	1.04	2.55	½-1½	
8753.00	A	80w	1.08	2.90	3½-4½	a⁴D-z⁴F°
6766.49	A	60	1.06	2.88	2½-3½	(31)
8784.98	A	40	1.05	2.87	1½-2½	
8812.40	A	20	1.04	2.85	½-1½	
8829.94	A	10	1.08	2.88	3½-3½	
8832.44	A	10	1.08	2.87	2½-2½	
8841.89	A	7	1.05	2.85	1½-1½	
6486.97	A	2	1.05	2.95	1½-2½	a⁴D-z²D° †
8578.98	A	2	1.04	2.91	½-1½	(32)
8097.42	A	(1)	1.08	3.10	3½-4½	a⁴D-y⁶F° †
8090.54	P		1.08	3.09	2½-3½	(33)
8087.485	A	1	1.05	3.07	1½-2½	
8089.473	A	(3)	1.04	3.07	½-1½	
8151.509	B	(1)	1.06	3.07	2½-1½	
8128.30	A	2	1.05	3.08	1½- ½	
8090.164	A	50	1.08	3.10	3½-2½	a⁴D-z⁴P°
8119.505	A	40	1.06	3.08	2½-1½	(34)
8135.36	A	15	1.05	3.06	1½- ½	
8039.690	A	25	1.08	3.10	2½-2½	
8081.421	A	25	1.05	3.08	1½-1½	
8111.622	A	25	1.04	3.08	½- ½	
8002.601	A	4	1.05	3.10	1½-2½	
8058.113	A	5	1.04	3.08	½-1½	
5737.024	A	60	1.08	3.23	3½-4½	a⁴D-y⁴F°
5898.509	A	60	1.06	3.22	2½-3½	(35)
5703.562	A	40	1.05	3.21	1½-2½	
5706.973	A	30	1.04	3.20	½-1½	

V I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5743.438	A	18	1.08	3.22	3½-3½	a⁴D-y⁴F°
5737.040	A	25	1.08	3.21	2½-2½	cont
5727.662	A	20	1.05	3.20	1½-1½	
*5782.601	A	2	1.08	3.21	3½-2½	
5761.411	A	2	1.06	3.20	2½-1½	
5870.827	A	30w	1.08	3.25	3½-4½	a⁴D-z²G°
5731.257	A	30	1.06	3.21	2½-3½	(36)
5776.670	A	4	1.08	3.21	3½-3½	
5627.628	A	30	1.08	3.27	3½-3½	a⁴D-y⁴D°
5824.605	A	20	1.06	3.25	2½-2½	(37)
5624.895	A	10	1.05	3.24	1½-1½	
5626.014	A	8	1.04	3.23	½- ½	
5668.369	A	12	1.08	3.25	3½-2½	
5857.449	A	12	1.06	3.24	2½-1½	
5848.112	A	10	1.05	3.23	1½- ½	
5584.490	A	10	1.06	3.27	3½-3½	
5593.409	A	12	1.05	3.25	1½-2½	
5604.943	A	8	1.04	3.24	½-1½	
5547.080	A	8	1.08	3.30	3½-4½	a⁴D-y⁶D° †
5545.933	A	2	1.06	3.28	2½-3½	(38)
5544.865	C	(1)	1.05	3.27	1½-2½	
4670.483	A	25w	1.08	3.72	3½-2½	a⁴D-y⁴P°
4646.396	A	15w	1.06	3.72	2½-1½	(39)
4640.082	A	8	1.05	3.71	1½- ½	
4640.735	A	7w	1.06	3.72	3½-2½	
4624.404	A	8	1.05	3.72	1½-1½	
4626.480	A	7	1.04	3.71	½- ½	
4618.800	A	(2)	1.05	3.72	1½-2½	
4610.925	A	2	1.04	3.72	½-1½	
4423.212	C	8	1.08	3.87	3½-4½	a⁴D-x⁴F° †
*4406.147	C	6	1.06	3.86	2½-3½	(40)
4393.835	C	4	1.05	3.86	1½-2½	
4387.213	C	3	1.04	3.85	½-1½	
4090.579	C	25	1.08	4.09	3½-4½	a⁴D-w⁴F° †
4095.486	C	25	1.06	4.07	2½-3½	(41)
4102.159	C	20	1.05	4.06	1½-2½	
m4109.81	P	V	1.04	4.04	½-1½	
4118.843	C	8	1.08	4.07	3½-3½	
4119.457	C	8	1.06	4.06	2½-2½	
4120.538	C	8	1.05	4.04	1½-1½	
3934.013	C	20	1.08	4.21	3½-3½	a⁴D-w⁴D°
3922.431	C	12	1.06	4.21	2½-2½	(42)
3920.487	C	5	1.05	4.19	1½-1½	
*3912.207	C	10	1.04	4.19	½- ½	
3943.864	C	12	1.08	4.21	3½-2½	
3936.282	C	5	1.06	4.19	2½-1½	
3921.905	C	6	1.05	4.19	1½- ½	
3912.888	C	4	1.06	4.21	2½-3½	
*3906.748	C	6	1.05	4.21	1½-2½	
3910.790	C	5	1.04	4.19	½-1½	
*3872.748	C	4n	1.08	4.26	3½-4½	a⁴D-v⁴F°
3875.426	C	3	1.06	4.24	2½-3½	(43)
3891.227	B	2	1.05	4.22	1½-2½	
3902.558	C	3	1.04	4.20	½-1½	
*3896.155§	E	6	1.08	4.24	3½-3½	
*3906.748	C	6	1.08	4.22	2½-2½	
*3912.207	C	10	1.05	4.20	1½-1½	
m3840.44	P	Fe	1.08	4.29	3½-3½	a⁴D-v⁴D°
3839.002	C	10	1.06	4.27	2½-2½	(44)
3836.054	C	5	1.05	4.26	1½-1½	
3835.580	C	4	1.04	4.26	½- ½	
3859.341	C	6	1.08	4.27	3½-2½	
3851.171	C	5	1.06	4.26	2½-1½	
3844.892	C	4	1.05	4.28	1½- ½	
3820.299	B	(4)	1.06	4.29	2½-3½	
3823.990	C	5	1.05	4.27	1½-2½	
3826.774	C	6	1.04	4.26	½-1½	
3583.704	C	8	1.08	4.52	3½-2½	a⁴D-x⁴P° †
3540.530	C	1	1.06	4.54	2½-1½	(45)
3542.657	C	1	1.05	4.53	1½- ½	
*3566.177§	E	4	1.06	4.52	2½-2½	
3400.395	C	12	1.08	4.71	3½-3½	a⁴D-t⁴D° †
3402.571	C	9	1.06	4.69	2½-2½	(46)
3405.160	C	6	1.05	4.67	1½-1½	
3408.837	C	8	1.04	4.66	½- ½	
3002.65	C	8	1.08	5.19	3½-2½	a⁴D-v⁴P° †
3004.824	C	10	1.06	5.17	2½-1½	(47)
6531.44	A	15	1.21	3.10	2½-2½	a⁴P-z⁴P°
6543.51	A	5	1.19	3.08	1½-1½	(48)
8585.88	A	3	1.18	3.06	½- ½	
8624.88	A	7	1.21	3.08	2½-1½	
6605.98	A	10	1.19	3.06	1½- ½	
6452.354	A	10	1.19	3.10	1½-2½	
6504.164	A	9	1.16	3.08	½-1½	
6002.273	A	2	1.21	3.27	2½-3½	a⁴P-y⁴D°
5980.748	A	2	1.19	3.25	1½-2½	(49)
5984.602	A	1	1.16	3.24	½-1½	
6048.838	A	tr	1.21	3.25	2½-2½	
6017.90	A	tr	1.19	3.24	1½-1½	
8008.648	A	tr	1.18	3.23	½- ½	
6086.55	A	(2)	1.21	3.24	2½-1½	
4925.657	A	10	1.21	3.72	2½-2½	a⁴P-y⁴P°
4886.821	A	2	1.19	3.72	1½-1½	(50)
4882.183	A	2	1.18	3.71	½- ½	
4932.029	A	4	1.21	3.72	2½-1½	
4904.285	A	(8)	1.19	3.71	1½- ½	
4860.560	A	8	1.19	3.72	1½-2½	
4884.83	P		1.18	3.72	½-1½	
4758.742	A	2	1.21	3.81	2½-2½†	a⁴P-z⁶S°
4716.644	A	(1-)	1.19	3.61	1½-2½†	(51)

V I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4113.518	C	12	1.21	4.21	2½-3½	a⁴P-w⁴D° †
4093.407	C	8	1.19	4.21	1½-2½	(52)
4091.945	C	3	1.18	4.19	½-1½	
4124.072	C	5	1.21	4.21	2½-2½	
4107.487	C	4	1.19	4.19	1½-1½	
4093.497	C	5	1.18	4.19	½- ½	
3533.676	C	10	1.21	4.71	2½-3½	a⁴P-t⁴D°
3529.735	C	10	1.19	4.69	1½-2½	(53)
3533.757	C	6	1.18	4.67	½-1½	
3553.271	C	6	1.21	4.89	2½-2½	
3545.339	C	8	1.19	4.87	1½-1½	
3543.500	C	8	1.18	4.86	½- ½	
3569.083	C	1	1.21	4.87	2½-1½	
3555.143	C	3	1.19	4.66	1½- ½	
3377.825	C	15	1.21	4.87	2½-2½	a⁴P-w⁴P°
3376.057	C	8	1.19	4.85	1½-1½	(54)
3386.880	C	4	1.18	4.84	½- ½	
3397.580	C	6	1.21	4.85	2½-1½	
3377.394	C	10	1.19	4.84	1½- ½	
3356.352	C	10	1.19	4.87	1½-2½	
3365.553	C	10	1.18	4.85	½-1½	
3329.855	C	12	1.21	4.92	2½-1½	a⁴P-x⁴S°
3309.176	C	8	1.19	4.92	1½-1½	(55)
3299.086	C	3	1.18	4.92	½-1½	
3106.11	C	5	1.21	5.19	2½-3½	a⁴P-v⁴P°
3103.60	F	1	1.19	5.17	1½-1½	(56)
3103.994	C	6	1.18	5.15	½- ½	
3121.749	C	4	1.21	5.17	2½-1½	
3112.925	C	8	1.19	5.15	1½- ½	
3088.114	C	30	1.19	5.19	1½-2½	
3094.692	C	20	1.18	5.17	½-1½	
3083.539	C	30	1.21	5.22	2½-3½	a⁴P-r⁴D°
3075.933	C	8	1.19	5.20	1½-2½	(57)
3080.333	C	12	1.18	5.18	½-1½	
3093.792	C	25	1.21	5.20	2½-2½	
3089.130	C	25	1.19	5.18	1½-1½	
3087.065	C	15	1.18	5.18	½- ½	
3107.142	B	5	1.21	5.18	2½-1½	
3095.902	C	5	1.19	5.18	1½- ½	
3016.16	C	20	1.21	5.30	2½-1½	a⁴P-w⁴S°
2999.238	C	12	1.19	5.30	1½-1½	(58)
2990.948	C	8	1.18	5.30	½-1½	
6558.02	A	5	1.37	3.25	4½-4½	a²G-z²G°
6607.82	A	3	1.34	3.21	3½-3½	(59)
6106.967	A	2	1.37	3.39	4½-3½	a²G-z²F°
6135.07	A	2	1.34	3.36	3½-2½	(60)
4609.646	A	4	1.37	4.05	4½-4½	a²G-z⁴H°
4585.94	G	2	1.34	4.04	3½-3½	(61)
4501.972	A	8	1.37	4.11	4½-4½	a²G-y²G°
4449.573	C	5	1.34	4.12	3½-3½	(62)
4491.164	C	2	1.37	4.12	4½-3½	
m4460.16	P	V	1.34	4.11	3½-4½	
3930.023	C	10	1.37	4.51	4½-4½	a²G-x²G°
*3909.894	C	20	1.34	4.50	3½-3½	(63)
3942.006	C	6	1.37	4.50	4½-3½	
3898.143	B	(4?)	1.34	4.51	3½-4½	
3886.587	C	6	1.37	4.55	4½-3½	a²G-w⁴G° †
3864.300	B	(3)	1.34	4.54	3½-2½	(64)
3885.770	C	2	1.37	4.55	4½-4½	a²G-w²G° †
3884.465	C	4	1.34	4.52	3½-3½	(65)
3871.078	C	8	1.37	4.56	4½-3½	a²G-x²F°
*3863.866§	C	6	1.34	4.54	3½-2½	(66)
3840.140	C	4	1.34	4.56	3½-3½	
3828.836	C	4	1.37	4.59	4½-5½	a²G-y²H°
3802.883	C	2	1.34	4.59	3½-4½	(67)
3833.226	C	3	1.37	4.59	4½-4½	
3806.796	C	8	1.37	4.61	4½-4½	a²G-v²G° †
3803.784	C	6	1.34	4.59	3½-3½	(68)
3790.469	C	8	1.37	4.63	4½-3½	a²G-w²F° †
3779.648	C	4	1.34	4.61	3½-2½	(69)
3686.262	C	8	1.37	4.72	4½-5½	a²G-x²H°
3671.205	C	10	1.34	4.71	3½-4½	(70)
3699.476	C	3	1.37	4.71	4½-4½	
3284.360	C	6	1.37	5.13	4½-4½	a²G-t²G° †
3273.027	C	7	1.34	5.12	3½-3½	(71)
3233.190	C	6	1.37	5.19	4½-3½	a²G-u²F° †
3218.869	C	5	1.34	5.18	3½-2½	(72)
3212.434	C	15	1.37	5.21	4½-5½	a²G-u²H° †
3205.582	C	15	1.34	5.19	3½-4½	(73)
3050.400	C	25	1.37	5.42	4½-3½	a²G-t²F°
3031.007	C	10†	1.34	5.42	3½-2½	(74)
3021.78	C	6	1.37	5.45	4½-5½	a²G-t²H°
3006.35	C	6	1.34	5.45	3½-4½	(75)
9865.44	A	10	1.70	2.95	1½-2½	a²P-z²D°
10203.45	A	10	1.70	2.91	½-1½	(76)
10193.66	A	5	1.70	2.91	1½-1½	
5558.752	A	3	1.70	3.92	1½- ½	a²P-z²S°
5561.670	A	2	1.70	3.92	½- ½	(77)
4833.027	A	3	1.70	4.26	1½-2½	a²P-y²D° †
*4848.821	A	1	1.70	4.25	½-1½	(78)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
V I continued						
4365.745	C	3	1.70	4.53	1½-2½	a³P-x³D°
*4422.477	C	2	1.70	4.50	½-1½	(79)
*3798.661	C	2	1.70	4.95	1½-2½	a³P-v³D°
m3834.22	P	Fe	1.70	4.92	½-1½	(80)
3832.835	C	4	1.70	4.93	1½-1½	
3505.690	C	6	1.70	5.22	1½-1½	a³P-v³P°
3487.008	D	2	1.70	5.24	½- ½	(81)
3485.867	B	6	1.70	5.24	1½- ½	
3506.843	C	3	1.70	5.22	½-1½	
4537.663	A	6	1.80	4.52	2½-1½	a³D-y³P°
4551.860	A	3	1.79	4.50	1½- ½	(82)
3639.024	C	6	1.80	5.19	2½-3½	a³D-u³F° †
3643.864	C	5	1.79	5.18	1½-2½	(83)
6326.845	A	6	1.86	3.81	6½-5½	a⁴H-y⁴G° †
6339.090	A	5	1.85	3.80	5½-4½	(84)
6349.477	A	5	1.85	3.79	4½-3½	
6357.297	A	4	1.84	3.78	3½-2½	
5584.738	A	(3)	1.86	4.07	6½-6½	a⁴H-z⁴H° †
5586.007	A	2	1.85	4.06	5½-5½	(85)
*5604.205	A	1	1.85	4.05	4½-4½	
5622.075	A	(2)	1.84	4.04	3½-3½	
4501.256	B	1	1.85	4.59	5½-5½	a⁴H-y³H°
4496.864	A	5	1.85	4.59	4½-4½	(86)
4490.815	A	5	1.85	4.59	4½-5½	
*4488.898	A	20	1.84	4.59	3½-4½	
4452.008	C	20	1.86	4.63	6½-7½	a⁴H-z⁴I° †
4462.363	C	20	1.85	4.62	5½-6½	(87)
4469.710	C	15	1.85	4.61	4½-5½	
4468.010	C	8	1.84	4.60	3½-4½	
4268.643	C	20	1.86	4.75	6½-6½	a⁴H-x⁴H° †
4271.554	C	12	1.85	4.74	5½-5½	(88)
4276.958	C	12	1.85	4.73	4½-4½	
4284.055	C	15	1.84	4.72	3½-3½	
3998.730	C	15	1.86	4.95	6½-5½	a⁴H-u⁴G° †
3992.801	C	12	1.85	4.94	5½-4½	(89)
*3990.566	C	20	1.85 1.84	4.94 4.93	4½-3½ 3½-2½	
3988.833	C	5	1.85	4.95	5½-5½	
3984.600	C	6	1.85	4.94	4½-4½	
3984.335	C	6	1.84	4.94	3½-3½	
3924.658	C	10	1.86	5.00	6½-6½	a⁴H-w⁴H° †
3927.926	C	(3)	1.85	4.99	5½-5½	(90)
3931.340	C	5	1.85	4.98	4½-4½	
3935.141	C	6	1.84	4.98	3½-3½	
*3722.601	C	(3)	1.86	5.17	6½-5½	a⁴H-t⁴G° †
3721.998	C	4	1.85	5.17	5½-4½	(91)
3729.035	C	4	1.85	5.16	4½-3½	
3737.992	C	5	1.84	5.14	3½-2½	
5772.402	A	6	1.92	4.06	2½-3½	b⁴P-x⁴D° †
*5748.860	A	4	1.89	4.03	1½-2½	(92)
5752.711	A	3	1.86	4.01	½-1½	
5850.286	A	2	1.92	4.03	2½-2½	
5817.063	A	3	1.89	4.01	1½-1½	
5788.549	A	3	1.86	3.99	½- ½	
4797.973	A	2	1.92	4.49	2½-1½	b⁴P-y⁴S°
4729.544	A	6	1.89	4.49	1½-1½	(93)
4686.926	A	6	1.86	4.49	½-1½	
4751.574	A	6	1.92	4.52	2½-2½	b⁴P-x⁴P°
4640.309	B	(0)	1.89	4.54	1½-1½	(94)
4624.657	B	(1)	1.86	4.53	½- ½	
4706.178	A	8	1.92	4.54	2½-1½	
4666.149	A	4	1.89	4.53	1½- ½	
4684.457	A	(3)	1.89	4.52	1½-2½	
4591.991	B	(0)	1.92	4.61	2½-2½	b⁴P-w³F°
4529.301	A	4	1.89	4.61	1½-2½	(95)
4071.541	C	8	1.92	4.95	2½-3½	b⁴P-s⁴D° †
4042.635	C	5	1.89	4.94	1½-2½	(98)
4021.925	C	3	1.86	4.93	½-1½	
*3781.393	C	3	1.92	5.19	2½-2½	b⁴P-v⁴P°
3761.442	C	3	1.89	5.17	1½-1½	(97)
*3747.982	C	8n	1.86	5.15	½- ½	
3804.589	C	3	1.92	5.17	2½-1½	
3775.187	C	3	1.89	5.15	1½- ½	
3738.757	C	8	1.89	5.19	1½-2½	
3734.428	C	5	1.86	5.17	½-1½	
*3747.982	C	8n	1.92	5.22	2½-3½	b⁴P-r⁴D° †
3720.93	G	1	1.89	5.20	1½-2½	(98)
3713.56	G	1	1.86	5.18	½-1½	
3763.141	C	6	1.92	5.20	2½-2½	
3740.241	C	6	1.89	5.18	1½-1½	
3723.324	C	3	1.86	5.18	½- ½	
4524.218	A	15	1.88	4.61	5½-4½	a²H-v²G° †
4529.589	A	8	1.88	4.59	4½-3½	(99)
4515.558	A	2	1.88	4.62	5½-6½	a²H-z⁴I°
4540.014	A	6	1.88	4.60	5½-4½	(100)
4474.714	C	12	1.88	4.64	5½-6½	a²H-z²I°
4457.759	C	8	1.86	4.63	4½-5½	(101)
4468.759	C	4	1.86	4.63	4½-3½	a²H-w³F°
						(102)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
V I continued						
4354.979	C	5	1.88	4.72	5½-5½	a²H-x²H°
4342.832	C	6	1.86	4.71	4½-4½	(103)
3708.721	C	6	1.88	5.21	5½-5½	a²H-u²H°
3706.035	C	4	1.86	5.19	4½-4½	(104)
3082.010	B	6	1.88	5.89	5½-5½	a²H-s²H°
3075.269	C	10	1.86	5.88	4½-4½	(105)
9611.60	A	80	1.95	3.23	4½-4½	b⁴F-y⁴F°
9614.68	A	50	1.94	3.22	3½-3½	(106)
9691.58	A	40	1.94	3.21	2½-2½	
9738.50	A	15	1.93	3.20	1½-1½	
9582.28	A	6np	1.94	3.22	2½-3½	
9668.9	A	3p†	1.93	3.21	1½-2½	
6430.471	A	5	1.95	3.87	4½-4½	b⁴F-x⁴F° †
6431.620	A	4	1.94	3.86	3½-3½	(107)
6433.17	A	3	1.94	3.86	2½-2½	
6435.148	A	2	1.93	3.85	1½-1½	
4722.877	A	8	1.95	4.56	4½-5½	b⁴F-w⁴G° †
4721.524	A	6	1.94	4.56	3½-4½	(108)
4730.394	A	3	1.94	4.55	2½-3½	
4545.394	A	25	1.95	4.66	4½-5½	b⁴F-v⁴G°
4560.710	A	20	1.94	4.65	3½-4½	(109)
4571.783	A	15	1.94	4.64	2½-3½	
4578.728	A	15	1.93	4.63	1½-2½	
4570.425	A	6	1.95	4.65	4½-4½	
4579.198	A	7	1.94	4.64	3½-3½	
4583.783	A	5	1.94	4.63	2½-2½	
4474.045	C	10	1.95	4.71	4½-3½	b⁴F-t⁴D°
4496.062	A	8	1.94	4.69	3½-2½	(110)
4514.191	A	6	1.94	4.67	2½-1½	
4525.168	A	5	1.93	4.66	1½- ½	
4464.747	C	2	1.94	4.71	3½-3½	
*4488.898	A	20	1.94	4.69	2½-2½	
4509.287	A	3	1.93	4.67	1½-1½	
4232.460	C	15	1.95	4.86	4½-4½	b⁴F-u⁴F° †
4232.952	C	12	1.94	4.86	3½-3½	(111)
*4234.000	C	12	1.94	4.85	2½-2½	
4235.756	C	10	1.93	4.85	1½-1½	
4104.778	C	15	1.95	4.95	4½-3½	b⁴F-s⁴D° †
4118.182	C	8	1.94	4.94	3½-2½	(112)
4123.188	C	6	1.94	4.93	2½-1½	
4128.858	C	5	1.93	4.92	1½- ½	
4807.537	A	25	2.12	4.68	6½-5½	z⁶G°-e⁶F †
4796.930	A	20	2.09	4.66	5½-4½	(113)
4786.515	A	20	2.07	4.64	4½-3½	
4776.364	A	10	2.05	4.63	3½-2½	
4766.635	A	10	2.03	4.62	2½-1½	
4757.50	A	8	2.02	4.61	1½- ½	
4757.37	A	4	2.09	4.68	5½-5½	
4753.957	A	7	2.07	4.66	4½-4½	
4750.990	A	8	2.05	4.64	3½-3½	
4748.525	A	7	2.03	4.63	2½-2½	
4746.638	A	5	2.02	4.62	1½-1½	
3695.335	C	30	2.12	5.46	6½-7½	z⁶G°-e⁶H
3687.473	C	12†	2.09	5.44	5½-6½	(114)
3680.113	C	15	2.07	5.42	4½-5½	
3673.404	C	12	2.05	5.41	3½-4½	
3667.741	C	15	2.03	5.40	2½-3½	
3663.594	C	15	2.02	5.39	1½-2½	
3717.55	G	1	2.12	5.44	6½-6½	
3705.83	G	1	2.09	5.42	5½-5½	
*3694.622	C	3	2.07	5.41	4½-4½	
3684.332	C	3	2.05	5.40	3½-3½	
3675.497	C	3	2.03	5.39	2½-2½	
3676.684	C	10	2.12	5.47	6½-6½	z⁶G°-f⁶G †
3672.403	C	8	2.09	5.45	5½-5½	(115)
3665.142	C	8	2.07	5.43	4½-4½	
3656.706	C	6	2.05	5.42	3½-3½	
*3648.966	C	5	2.03	5.41	2½-2½	
3641.096	C	4	2.02	5.41	1½-1½	
3014.37	C	15N	2.12	6.21	6½-7½	z⁶G°-f⁶H
3006.90	F	5N	2.09	6.19	5½-6½	(116)
3006.24	F	5N	2.07	6.17	4½-5½	
3001.90	F	10N	2.05	6.16	3½-4½	
2997.87	F	5N	2.03	6.15	2½-3½	
2997.08	F	3N	2.02	6.14	1½-2½	
7338.92	A	30	2.13	3.81	5½-5½	a⁴G-y⁴G° †
7356.51	A	20	2.12	3.80	4½-4½	(117)
7363.16	A	15	2.11	3.79	3½-3½	
7361.39	A	10	2.11	3.78	2½-2½	
4904.350	B	(9)	2.13	4.64	5½-6½	a⁴G-y⁴H° †
4904.447	B	(7)	2.12	4.64	4½-5½	(118)
4900.624	A	6	2.11	4.63	3½-4½	
4894.318	A	4	2.11	4.63	2½-3½	
4706.574	A	12	2.13	4.75	5½-6½	a⁴G-x⁴H° †
4710.566	A	12	2.12	4.74	4½-5½	(119)
4714.113	A	10	2.11	4.73	3½-4½	
4717.692	A	10	2.11	4.72	2½-3½	
4291.816	C	15	2.13	5.00	5½-6½	a⁴G-w⁴H° †
4296.107	C	15	2.12	4.99	4½-5½	(120)
4297.681	C	12	2.11	4.98	3½-4½	
4298.029	C	12	2.11	4.98	2½-3½	
*4051.352§	C	12	2.13	5.17	5½-5½	a⁴G-t⁴G° †
*4050.963§	C	10	2.12	5.17	4½-4½	(121)
4057.074	C	10	2.11	5.16	3½-3½	
4063.931	C	10	2.11	5.14	2½-2½	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
V I continued						
3571.037	C	4	2.13	5.58	5½-4½	a⁴G-q⁴F°
3573.516	C	5	2.12	5.57	4½-3½	(122)
3571.653	C	5	2.11	5.57	3½-2½	
3568.940	C	3	2.11	5.56	2½-1½	
5128.530	A	7	2.28	4.68	4½-5½	z⁶D°-e⁶F
5138.431	A	5	2.26	4.66	3½-4½	(123)
5148.734	A	4	2.25	4.64	2½-3½	
5159.350	A	3	2.24	4.63	1½-2½	
3741.504	C	6	2.28	5.57	4½-4½	z⁶D°-g⁶D
*3755.701	C	4	2.28 2.26	5.56 5.55	4½-3½ 3½-2½	(124)
5193.004	A	7	2.31	4.68	5½-5½	z⁶F°-e⁶F
*5194.824	A	10	2.29	4.66	4½-4½	(125)
5195.394	A	5	2.27	4.64	3½-3½	
*5194.824	A	10	2.25	4.63	2½-2½	
3898.019	C	6	2.31	5.47	5½-6½	z⁶F°-f⁶G
3901.152	C	6	2.29	5.45	4½-5½	(126)
3900.175	C	6	2.27	5.43	3½-4½	
3897.075	C	6	2.25	5.42	2½-3½	
5748.412	A	(1)	2.37	4.52	1½-1½	b³P-y³P°
5656.895	A	1	2.32	4.50	½- ½	(127)
*5782.601	A	2	2.37	4.50	1½- ½	
5624.223	A	(2)	2.32	4.52	½-1½	
4776.519	A	5	2.37	4.95	1½-2½	b³P-v³D°
4742.631	A	5	2.32	4.92	½-1½	(128)
5487.915	A	10	2.36	4.61	5½-4½	b³H-v³G°
5507.753	A	8	2.35	4.59	4½-3½	(129)
5415.277	A	10	2.36	4.64	5½-6½	b³H-z³I°
*5401.945	A	8	2.35	4.63	4½-5½	(130)
5240.878	A	9	2.36	4.72	5½-5½	b³H-x³H°
5234.088	A	8	2.35	4.71	4½-4½	(131)
*5014.620	A	5	2.36	4.82	5½-6½	b³H-y³I°
5002.320	A	4	2.35	4.82	4½-5½	(132)
4591.220	A	12	2.36	5.05	5½-5½	b³H-w³H°
4553.056	A	7	2.35	5.06	4½-4½	(133)
3237.409	C	4	2.36	6.19	5½-6½	b³H-x³I°
3229.604	B	4	2.35	6.17	4½-5½	(134)
5725.633	A	6	2.36	4.51	3½-4½	a³F-x³G°
5734.004	A	5	2.35	4.50	2½-3½	(135)
4705.099	A	4	2.36	4.98	3½-2½	a³F-u³D°
4715.900	A	5	2.35	4.97	2½-1½	(136)
3645.596	C	3	2.36	5.74	3½-2½	a³F-5°
*3265.899§	C	5	2.36	6.13	3½-2½	(137) a³F-t³D°
3256.779	B	1	2.35	6.14	2½-1½	(138)
5266.118	A	(4)	2.67	5.01	4½-3½	b³G-v³F°
*5401.945	A	8	2.67	4.96	3½-2½	(139)
4373.230	C	4	2.67	5.49	4½-4½	b³G-s³G°
4375.304	C	4	2.67	5.49	3½-3½	(140)
5784.360	A	5	2.75	4.89	5½-4½	z⁴G°-f⁴F
*5786.153	A	7	2.73 2.71	4.86 4.84	4½-3½ 3½-2½	(141)
5783.509	A	2	2.70	4.83	2½-1½	
5846.306	A	8	3.12	5.23	5½-6½	y⁶F°-e⁶G
5830.719	A	7	3.10	5.22	4½-5½	(142)
5817.532	A	5	3.09	5.21	3½-4½	
5807.14	A	3	3.07	5.20	2½-3½	
5798.905	A	2	3.07	5.19	1½-2½	
5797.352	A	(1-)	3.06	5.19	½-1½	

Strongest Unclassified Lines of V I

4619.648	A	8	IV
4549.644	A	10	IV
4527.990	A	5	IV
4265.170	C	8n	III
*3963.628§	C	4	II
3898.278	C	5	II
3891.119	C	4	II
3849.324	C	6	I
3845.974	C	3	II
3425.070	C	6	II
3261.081	C	6	III
3156.222	C	10	IV
3153.549	C	5N	IV
3150.568	C	5	IV
3092.72	G	8	III
3041.86	C	8	IV
3002.442	C	6	IV

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
V II I P 14.1 Anal A List A Jan 1941						
3093.108//	A	2500R	0.39	4.38	5-6	$a^5F-z^5G^\circ$
3102.295	A	2000R	0.37	4.34	4-5	(1)
3110.706	A	1500R	0.35	4.31	3-4	
3118.376	A	1000R	0.33	4.29	2-3	
3125.282	A	600R	0.32	4.27	1-2	
3121.138	A	80	0.39	4.34	5-5	
3126.215	A	150R	0.37	4.31	4-4	
3130.262	A	100R	0.35	4.29	3-3	
3133.329	A	150r	0.33	4.27	2-2	
3145.337	A	30	0.39	4.31	5-4	
3145.971	A	20	0.37	4.29	4-3	
3145.337	A	30	0.35	4.27	3-2	
3952.07	A	150	0.35	4.53	3-2	$a^5F-z^5F^\circ$ †
3957.520	A	100	0.33	4.50	2-1	(2)
3831.017	A	6	1.12	4.34	4-5	$a^3F-z^5G^\circ$
3829.655	A	5	1.09	4.31	3-4	(3)
3829.53	A	4	1.07	4.29	2-3	
3852.10	A	4	1.07	4.27	2-2	
3538.238	A	50	1.12	4.61	4-5	$a^3F-z^5F^\circ$
3531.48	A	10	1.09	4.59	3-4	(4)
3535.18	P		1.07	4.56	2-3	
3583.71	A	3n	1.12	4.59	4-4	
3560.594	A	90	1.09	4.56	3-3	
3566.177§	A	200	1.07	4.53	2-2	
3593.323	A	600	1.12	4.56	4-3	
3592.012	A	800	1.09	4.53	3-2	
3589.745	A	1000	1.07	4.50	2-1	
3556.800	A	1500	1.12	4.59	4-3	$a^3F-z^3D^\circ$
3545.190	A	1000	1.09	4.57	3-2	(5)
3530.785	A	500	1.07	4.56	2-1	
3524.713	A	200	1.09	4.59	3-3	
3520.022	A	120	1.07	4.57	2-2	
3499.823	A	20	1.07	4.59	2-3	
3516.00	A	5	1.12	4.63	4-4	$a^3F-z^5D^\circ$
3485.916	A	250	1.09	4.63	3-3	(6)
3479.837	A	80	1.07	4.61	2-2	
3517.296	A	600	1.12	4.63	4-3	
3504.432	A	400	1.09	4.61	3-2	
3493.163	A	150	1.07	4.60	2-1	
3484.85	A	3	1.09	4.63	3-4	
3481.580	A	5	1.07	4.83	2-3	
3378.12	A	1500R	1.12	4.89	4-5	$a^3F-z^3G^\circ$
3371.124	A	1200R	1.09	4.86	3-4	(7)
3367.709	A	1000R	1.07	4.84	2-3	
3398.738	A	130	1.12	4.86	4-4	
3389.391	A	100	1.09	4.84	3-3	
3317.395	A	2	1.12	4.84	4-3	
3190.686	A	500R	1.12	4.99	4-4	$a^3F-z^3F^\circ$
3188.522	A	300R	1.09	4.96	3-3	(8)
3187.717	A	200R	1.07	4.94	2-2	
3214.750	A	120	1.12	4.96	4-3	
3208.345	A	100	1.09	4.94	3-2	
3184.82	A	40	1.09	4.99	3-4	
3168.127	A	40	1.07	4.96	2-3	
3997.126	A	300	1.47	4.56	2-3	$a^3P-z^5F^\circ$
3973.842	A	300	1.42	4.53	1-2	(9)
3968.11	A	150	1.39	4.50	0-1	
4038.779	A	60	1.47	4.53	2-2	
4002.940	A	80	1.42	4.50	1-1	
4067.03	A	5	1.47	4.50	2-1	
3951.968	A	500	1.47	4.59	2-3	$a^3P-z^3D^\circ$
3916.418	A	200	1.42	4.57	1-2	(10)
3896.155§	A	60	1.39	4.56	0-1	
3977.732	A	60	1.47	4.57	2-2	
3929.734	A	50	1.42	4.56	1-1	
3991.47	A	3	1.47	4.58	2-1	
3903.27	A	250	1.47	4.63	2-3	$a^3P-z^5D^\circ$
3866.744	A	60	1.42	4.61	1-2	(11)
3850.409	A	7	1.39	4.60	0-1	
3928.497	A	10	1.47	4.61	2-2	
3883.208	A	5	1.42	4.60	1-1	
3943.48	P		1.47	4.60	2-1	
3891.98	P		1.42	4.59	1-0	
3534.14	A	2	1.47	4.98	2-3	$a^3P-z^3F^\circ$
						(12)
4389.12	P		1.57	4.38	6-6	$a^3H-z^5G^\circ$
4429.11	P		1.56	4.34	5-5	(13)
4462.76	P		1.55	4.31	4-4	
4445.77	P		1.57	4.34	6-5	
4478.03	P		1.56	4.31	5-4	
4503.13	P		1.55	4.29	4-3	
4372.68	P		1.56	4.38	5-8	
4414.17	P		1.55	4.34	4-5	
4056.270	A	7	1.57	4.81	6-5	$a^3H-z^5F^\circ$
4075.66	A	3	1.56	4.59	5-4	(14)
4715.478	A	1200 l	1.57	4.69	6-5	$a^3H-z^3G^\circ$
4732.760	A	800 l	1.58	4.88	5-4	(15)
4745.808	A	800	1.55	4.84	4-3	
4703.832	A	7	1.56	4.89	5-5	
4722.18§	A	10	1.55	4.88	4-4	
4737.59	A	1	1.67	4.27	2-2	$b^3F-z^5G^\circ$
						(16)
4388.78	A	5?	1.68	4.56	4-3	$b^3F-z^5F^\circ$
4382.02	A	4	1.67	4.53	3-2	(17)
4346.89	A	3	1.67	4.50	2-1	
4338.82	A	4	1.68	4.59	4-3	$b^3F-z^3D^\circ$
4254.41	A	15n	1.67	4.57	3-2	(18)
4260.75	A	9n	1.67	4.56	2-1	
4179.062	A	3	1.68	4.63	4-4	$b^3F-z^5D^\circ$
4160.86	A	6?	1.68	4.83	4-3	(19)
4195.83	A	1	1.67	4.61	3-2	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
V II oontinued						
m3844.48	P	V	1.88	4.89	4-5	$b^3F-z^3G^\circ$
3865.72	A	5	1.67	4.88	3-4	(20)
3883.43	A	2	1.87	4.84	2-3	
3875.67	A	5	1.68	4.86	4-4	
3891.25	A	4	1.87	4.84	3-3	
3901.33	P		1.68	4.84	4-3	
3727.351	A	1000 l	1.68	4.99	4-4	$b^3F-z^3F^\circ$
3750.88	A	600	1.67	4.96	3-3	(21)
3770.974	A	400	1.67	4.94	2-2	
3760.24	A	140	1.68	4.96	4-3	
3778.357	A	100	1.67	4.94	3-2	
3718.159	A	60	1.67	4.99	3-4	
3743.810	A	40	1.87	4.96	2-3	
*2983.009	A	10	1.67	5.81	3-4	$b^3F-z^3H^\circ$ †
						(22)
4370.64	A	2	1.70	4.59	3-4	$a^5P-z^5F^\circ$
4288.13	A	3	1.88	4.56	2-3	(23)
4316.258	A	2	1.67	4.53	1-2	
4313.30	A	2	1.70	4.56	3-3	
4331.79	A	2	1.88	4.53	2-2	
*4360.75	A	9n	1.70	4.59	3-3	$a^5P-z^3D^\circ$
4263.838	A	4n	1.68	4.57	2-2	(24)
4264.50	A	1	1.87	4.56	1-1	
4234.251	A	7	1.88	4.59	2-3	
4248.820	A	4	1.67	4.57	1-2	
4202.350	A	150	1.70	4.63	3-4	$a^5P-z^5D^\circ$
4178.390	A	60	1.68	4.63	2-3	(25)
4190.40	A	15	1.67	4.61	1-2	
4204.20	A	20	1.70	4.63	3-3	
m4205.05	P	V+	1.68	4.61	2-2	
4209.74	A	10	1.87	4.60	1-1	
4231.165	A	4	1.70	4.61	3-2	
4224.51	A	10	1.68	4.60	2-1	
4220.047	A	10	1.67	4.59	1-0	
3029.56	A	7	1.70	5.77	3-2	$a^5P-z^3P^\circ$
3020.65	A	6	1.68	5.76	2-1	(26)
3022.57	A	40	1.67	5.75	1-0	
3016.14	A	15	1.68	5.77	2-2	
3013.102	A	80	1.67	5.76	1-1	
3008.610	A	70	1.67	5.77	1-2	
3001.203	A	200	1.70	5.81	3-3	$a^5P-z^5P^\circ$
3003.461	A	80	1.68	5.79	2-2	(27)
3007.296	A	15	1.67	5.77	1-1	
3016.775	A	120	1.70	5.79	3-2	
3014.622	A	100	1.68	5.77	2-1	
2968.027	A	80	1.68	5.81	2-3	
2995.999	A	60	1.67	5.79	1-2	
2968.373	A	200	1.70	5.85	3-4	$a^5P-y^5D^\circ$
2976.517	A	100	1.68	5.82	2-3	(28)
2976.197	A	60	1.67	5.81	1-2	
2989.594	A	40	1.70	5.82	3-3	
2983.558	A	80n	1.68	5.81	2-2	
2975.650	A	50	1.87	5.82	1-1	
2998.70	A	3	1.70	5.81	3-2	
*2983.009	A	10	1.68	5.82	2-1	
2982.75	A	40	1.67	5.61	1-0	
4799.94	P		1.61	4.38	5-8	$a^3G-z^5G^\circ$
4844.31	P		1.60	4.34	4-5	(29)
4880.30	P		1.79	4.31	3-4	
4887.79	P		1.81	4.34	5-5	
4902.89	P		1.80	4.31	4-4	
4928.62	P		1.79	4.29	3-3	
4926.94	P		1.81	4.31	5-4	
4951.66	P		1.80	4.29	4-3	
4966.08	P		1.79	4.27	3-2	
4404.68	A	2	1.81	4.61	5-5	$a^3G-z^5F^\circ$
4424.62	P		1.80	4.59	4-4	(30)
4451.61	P		1.79	4.56	3-3	
4444.20	P		1.81	4.59	5-4	
4470.39	P		1.80	4.58	4-3	
4500.88	P		1.79	4.53	3-2	
4385.45	P		1.80	4.61	4-5	
4406.22	P		1.79	4.59	3-4	
4370.27	A	3	1.81	4.63	5-4	$a^3G-z^5D^\circ$
						(31)
4005.712	A	800	1.81	4.89	5-5	$a^3G-z^3G^\circ$
4023.388	A	600	1.60	4.86	4-4	(32)
4035.831	A	400	1.79	4.84	3-3	
4039.574	A	20	1.81	4.86	5-4	
*4051.06§	A	20	1.60	4.84	4-3	
3989.603	A	15	1.80	4.89	4-5	
4008.17	A	20	1.79	4.86	3-4	
3878.715	A	300	1.81	4.99	5-4	$a^3G-z^3F^\circ$
3899.140	A	200	1.80	4.98	4-3	(33)
3914.333	A	250	1.79	4.94	3-2	
*3863.81§	A	60	1.60	4.99	4-4	
3884.847	A	50	1.79	4.96	3-3	
3849.758	A	3	1.79	4.99	3-4	
3033.821	A	300	1.81	5.68	5-6	$a^3G-z^3H^\circ$
3053.39	A	200	1.60	5.84	4-5	(34)
3067.104	A	200	1.79	5.81	3-4	
3062.702	A	20	1.81	5.84	5-5	
3076.016	A	25	1.80	5.81	4-4	
3085.47	A	1	1.81	5.81	5-4	
4810.17	A	1?	2.03	4.59	4-3	$b^3G-z^3D^\circ$
						(35)
4331.55	A	6n	2.04	4.89	5-5	$b^3G-z^3G^\circ$
4349.97	A	6n	2.03	4.88	4-4	(38)
4366.91	A	5n	2.02	4.84	3-3	
4371.17	P		2.04	4.88	5-4	
4382.33	P		2.03	4.84	4-3	
4310.72	P		2.03	4.89	4-5	
4334.77	P		2.02	4.88	3-4	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
V II continued						
4183.435	A	250	2.04	4.99	5-4	$b^3G-z^3F^\circ$
4205.080	A	250	2.03	4.96	4-3	(37)
4225.228	A	120	2.02	4.94	3-2	
4164.015	A	15	2.03	4.99	4-4	
4190.89	A	10	2.02	4.96	3-3	
4150.08	P		2.02	4.99	3-4	
*3217.121§	A	400	2.04	5.88	5-6	$b^3G-z^3H^\circ$
3237.876	A	350	2.03	5.84	4-5	(38)
*3254.773§	A	300	2.02	5.81	3-4	
3249.617	A	40	2.04	5.84	5-5	
3263.33	A	20	2.03	5.81	4-4	
m3093.16	P	V+	2.04	6.03	5-5	$b^3G-y^3G^\circ$
3094.196	A	100	2.03	6.02	4-4	(39)
3100.938	A	100	2.02	6.00	3-3	
3104.906	A	25	2.04	6.02	5-4	
3108.704	A	30	2.03	6.00	4-3	
3082.524	A	40	2.03	6.03	4-5	
3086.507	A	30	2.02	6.02	3-4	
3053.894	A	80	2.04	6.08	5-4	$b^3G-y^3F^\circ$
3048.891	A	70	2.03	6.08	4-3	(40)
3042.27	A	80	2.02	6.07	3-2	
*3043.54§	A	40	2.03	6.08	4-4	
3041.42	A	60	2.02	6.08	3-3	
3036.07	A	2	2.02	6.08	3-4	
3023.882	A	20	2.04	6.12	5-5	$b^3G-z^1H^\circ$
						(41)
3015.98	A	10	2.03	6.12	4-3	$b^3G-z^1F^\circ$
						(42)
3012.020	A	30	2.04	6.14	5-4	$b^3G-z^1G^\circ$
3001.93	A	2	2.03	6.14	4-4	(43)
2979.102	A	5	2.02	6.16	3-2	$b^3G-z^1D^\circ$
						(44)
4606.59	P		2.21	4.89	4-5	$a^1G-z^3G^\circ$
4651.42	P		2.21	4.86	4-4	(45)
4688.45	P		2.21	4.84	4-3	
4439.42	A	1	2.21	4.99	4-4	$a^1G-z^3F^\circ$
						(46)
3401.997	A	2	2.21	5.84	4-5	$a^1G-z^3H^\circ$
						(47)
3230.919	A	4	2.21	6.03	4-5	$a^1G-y^3G^\circ$
3243.74	P		2.21	6.02	4-4	(48)
3259.684	A	3	2.21	6.00	4-3	
3188.10	A	30	2.21	6.08	4-4	$a^1G-y^3F^\circ$
*3193.97§	A	10?	2.21	6.08	4-3	(49)
3157.900	A	40	2.21	6.12	4-3	$a^1G-z^1F^\circ$
						(50)
3155.409	A	60	2.21	6.12	4-5	$a^1G-z^1H^\circ$
						(51)
3142.484	A	150	2.21	6.14	4-4	$a^1G-z^1G^\circ$
						(52)
5318.61	P		2.27	4.59	3-4	$a^3D-z^5F^\circ$
5367.53	P		2.26	4.56	2-3	(53)
5432.09	A	2	2.26	4.53	1-2	
5384.89	A	6	2.27	4.58	3-3	
5439.30	A	15	2.26	4.53	2-2	
5487.00	A	8	2.26	4.50	1-1	
5457.10	A	4	2.27	4.53	3-2	
5494.35	P		2.26	4.50	2-1	
5303.26	A	40	2.27	4.59	3-3	$a^3D-z^3D^\circ$
5332.65	A	9	2.26	4.57	2-2	(54)
5350.37	A	5	2.26	4.56	1-1	
5349.75	A	3	2.27	4.57	3-2	
5357.35	A	2	2.26	4.56	2-1	
5286.42	P		2.26	4.59	2-3	
5325.71	P		2.26	4.57	1-2	
5213.08	P		2.27	4.63	3-4	$a^3D-z^5D^\circ$
5199.68	A	4	2.26	4.63	2-3	(55)
5234.28	P		2.26	4.61	1-2	
5215.928	A	25	2.27	4.63	3-3	
5240.97	P		2.26	4.61	2-2	
5264.49	P		2.26	4.60	1-1	
5257.51	P		2.27	4.61	3-2	
5271.28	P		2.26	4.60	2-1	
5280.62	P		2.26	4.59	1-0	
4528.51	A	300	2.27	4.99	3-4	$a^3D-z^3F^\circ$
4564.592	A	200.	2.26	4.96	2-3	(56)
4600.19	A	150	2.26	4.94	1-2	
m4577.13	P	V	2.27	4.96	3-3	
4605.352	A	15	2.26	4.94	2-2	
4618.12	P		2.27	4.94	3-2	
3521.838	A	90	2.27	5.77	3-2	$a^3D-z^3P^\circ$
3520.547	A	15	2.26	5.76	2-1	(57)
3530.45	A	10	2.26	5.75	1-0	
3514.422	A	20	2.26	5.77	2-2	
3517.53	P		2.26	5.76	1-1	
3511.42	A	3	2.26	5.77	1-2	
3477.614	A	40	2.27	5.81	3-2	$a^3D-y^5D^\circ$
3469.528	A	50	2.26	5.82	2-1	(58)
3476.252	A	20	2.26	5.81	1-0	
3470.263	A	20	2.26	5.81	2-2	
3466.59	A	20	2.26	5.82	1-1	
3467.33	A	2	2.26	5.81	1-2	
3333.608	A	2	2.26	5.96	1-0	$a^3D-z^1S^\circ$
						(59)
3291.04	A	5	2.27	6.02	3-4	$a^3D-y^3G^\circ$
3300.905	A	6	2.26	6.00	2-3	(60)
3307.445	A	2	2.27	6.00	3-3	
3233.772	A	80	2.27	6.08	3-4	$a^3D-y^3F^\circ$
3233.546	A	40	2.26	6.08	2-3	(61)
3231.952	A	80	2.26	6.07	1-2	
3239.833	A	8	2.27	6.08	3-3	
3234.504	A	10	2.26	6.07	2-2	
3240.785	A	1	2.27	6.07	3-2	

V II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3202.711	A	2	2.27	6.12	3-3	$a^3D-z^1F^o$
3196.574	A	20	2.26	6.12	2-3	(62)
3186.66	A	10	2.27	6.14	3-4	$a^3D-z^1G^o$
						(63)
3186.10	A	1	2.27	6.14	3-2	$a^3D-z^5S^o$
						(64)
3169.31	A	2	2.27	6.16	3-2?	$a^3D-z^1D^o$
•3160.781	A	15	2.26	6.16	1-2	(65)
3050.735	A	15	2.27	6.31	3-2	$a^3D-y^3P^o$
3081.254	A	25	2.26	6.26	2-1	(66)
3086.210	A	10	2.26	6.25	1-0	
3078.948	A	5	2.26	6.26	1-1	
3054.24	A	7n	2.27	6.31	3-3	$a^3D-y^3D^o$
3048.65	A	4	2.26	6.31	2-3	(67)
3075.474	A	2	2.26	6.27	1-2	
4968.50	A	1	2.36	4.84	4-3	$b^1G-z^3G^o$
						(68)
3547.07	A	5	2.36	5.64	4-5	$b^1G-z^3H^o$
3577.644	A	3	2.36	5.81	4-4	(69)
3361.506	A	60	2.36	6.03	4-5	$b^1G-y^3G^o$
3392.659	A	50	2.36	6.00	4-3	(70)
3315.176	A	50	2.36	6.08	4-4	$b^1G-y^3F^o$
3321.539	A	150	2.36	6.08	4-3	(71)
3282.534	A	150	2.36	6.12	4-3	$b^1G-z^1F^o$
						(72)
3279.844	A	300	2.36	6.12	4-5	$b^1G-z^1H^o$
						(73)
•3265.893§	A	100	2.36	6.14	4-4	$b^1G-z^1G^o$
						(74)
3025.68	A	1	2.36	6.44	4-5	$b^1G-y^3H^o$
3032.187	A	3	2.36	6.43	4-4	(75)
3621.203	A	150	2.36	5.77	2-2	$b^3P-z^3P^o$
3632.126	A	15	2.37	5.76	1-1	(76)
3627.713	A	60	2.36	5.76	2-1	
3645.905	A	30	2.37	5.75	1-0	
3625.606	A	50	2.37	5.77	1-2	
3631.482	A	10	2.37	5.76	0-1	
3607.30	A	1	2.37	5.79	1-2	$b^3P-z^5P^o$
3623.03	A	1	2.37	5.77	0-1	(77)
3574.340	A	60	2.36	5.81	2-2	$b^3P-y^5D^o$
•3577.857§	A	20	2.37	5.82	1-1	(76)
3573.557	A	50	2.36	5.82	2-1	
3588.13	A	15	2.37	5.81	1-0	
3578.636	A	15	2.37	5.81	1-2	
3577.220	A	10	2.37	5.82	0-1	
3436.393	A	2	2.37	5.96	1-0	$b^3P-z^1S^o$
						(79)
3394.92	A	1	2.36	6.00	2-3	$b^3P-y^3G^o$
						(80)
3323.731	A	3	2.36	6.08	2-3	$b^3P-y^3F^o$
						(61)
3249.464	A	4	2.36	6.16	2-2	$b^3P-z^1D^o$
						(82)
3128.686	A	20	2.36	6.31	2-3	$b^3P-y^3D^o$
3162.714	A	30	2.37	6.27	1-2	(83)
3192.699	A	15	2.37	6.23	0-1	
3159.365	A	20	2.36	6.27	2-2	
3193.200	A	20	2.37	6.23	1-1	
3189.76	A	3	2.36	6.23	2-1	
3125.01	A	20	2.36	6.31	2-2	$b^3P-y^3P^o$
3166.39	A	6	2.37	6.26	1-1	(84)
3163.024	A	30	2.36	6.26	2-1	
3174.077	A	30	2.37	6.25	1-0	
3128.286	A	10	2.37	6.31	1-2	
3165.89	A	30	2.37	6.26	0-1	
3024.981	A	50	2.36	6.44	2-1	$b^3P-z^3S^o$
3028.042	A	50	2.37	6.44	1-1	(65)
3027.600	A	15	2.37	6.44	0-1	
3005.813	A	30	2.36	6.47	2-3	$b^3P-x^3F^o$
3022.146	A	4	2.37	6.45	1-2	(66)
3019.09	A	3	2.36	6.45	2-2	
2972.263	A	80	2.36	6.51	2-3	$b^3P-x^3D^o$
2981.200	A	70	2.37	6.51	1-2	(87)
2989.306	A	15	2.37	6.49	0-1	
2978.226	A	20	2.36	6.51	2-2	
2989.74	A	10	2.37	6.49	1-1	
3370.40	A	2	2.37	6.03	6-5	$a^1I-y^3G^o$
						(68)
3288.324	A	20	2.37	6.12	6-5	$a^1I-z^1H^o$
						(89)
6027.23	A	8	2.46	4.50	0-1	$a^1S-z^5F^o$
						(90)
5862.80	A	15+p?	2.46	4.56	0-1	$a^1S-z^3D^o$
						(91)
3731.983	A	20	2.46	5.76	0-1	$a^1S-z^3P^o$
						(92)
3674.691	A	30	2.46	5.82	0-1	$a^1S-y^5D^o$
						(93)
3270.115	A	10	2.46	6.23	0-1	$a^1S-y^3D^o$
						(94)
3057.08	A	2	2.46	6.49	0-1	$a^1S-x^3D^o$
						(95)
3038.520	A	30	2.46	6.52	0-1	$a^1S-z^1P^o$
						(96)
6031.07	A	40	2.51	4.56	2-3	$c^3P-z^5F^o$
6028.26	A	40	2.48	4.53	1-2	(97)
6120.98	A	5	2.49	4.50	0-1	
6095.93	A	3	2.48	4.50	1-1	

V II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5928.86	A	100	2.51	4.59	2-3	$c^3P-z^3D^o$
5897.54	A	50	2.48	4.57	1-2	(96)
5951.45	A	4	2.49	4.56	0-1	
5819.93	A	80	2.51	4.63	2-3	$c^3P-z^5D^o$
						(99)
3787.235	A	150	2.51	5.77	2-2	$c^3P-z^3P^o$
•3758.23§	A	40	2.48	5.76	1-1	(100)
3794.366	A	50	2.51	5.76	2-1	
3772.962	A	60	2.48	5.75	1-0	
3751.222	A	150	2.48	5.77	1-2	
3767.720	A	40	2.49	5.76	0-1	
3731.64	A	1	2.48	5.79	1-2	$c^3P-z^5P^o$
						(101)
3724.984	A	2	2.51	5.82	2-3	$c^3P-y^5D^o$
3700.96	A	30	2.48	5.81	1-2	(102)
3709.335	A	40	2.49	5.82	0-1	
3736.017	A	70	2.51	5.81	2-2	
3700.126	A	40	2.48	5.62	1-1	
3735.158	A	30	2.51	5.62	2-1	
3711.118	A	50	2.48	5.81	1-0	
3549.030	A	3	2.48	5.96	1-0	$c^3P-z^1S^o$
						(103)
3483.079	A	4	2.51	6.08	2-3	$c^3P-y^3F^o$
3434.024	A	4	2.48	6.07	1-2	(104)
3484.17	A	6	2.51	6.07	2-2	
3420.709	A	5	2.51	6.12	2-3	$c^3P-z^1F^o$
						(105)
3401.740	A	1	2.51	6.14	2-2	$c^3P-z^5S^o$
3372.666	A	3	2.48	6.14	1-2	(106)
3382.529	A	30	2.51	6.16	2-2	$c^3P-z^1D^o$
3353.776	A	30	2.48	6.16	1-2	(107)
3351.669	A	200	2.51	6.31	2-3	$c^3P-y^3D^o$
3257.893	A	100	2.48	6.27	1-2	(108)
3297.528	A	20	2.49	6.23	0-1	
3285.022	A	50	2.51	6.27	2-2	
3290.240	A	50	2.48	6.23	1-1	
3317.912	A	20	2.51	6.23	2-1	
3247.908	A	4	2.51	6.31	2-2	$c^3P-y^3P^o$
3261.60	A	5	2.48	6.26	1-1	(109)
3288.985	A	7	2.51	6.26	2-1	
3221.380	A	2	2.48	6.31	1-2	
3119.32	A	4	2.51	6.47	2-3	$c^3P-x^3F^o$
						(110)
3115.16	A	2	2.48	6.44	1-1	$c^3P-z^3S^o$
						(111)
3083.208	A	40	2.51	6.51	2-3	$c^3P-x^3D^o$
3065.61	A	50	2.48	6.51	1-2	(112)
3081.01	A	20	2.49	6.49	0-1	
3089.633	A	4	2.51	6.51	2-2	
3074.66	A	12	2.48	6.49	1-1	
3079.75	A	1	2.51	6.52	2-1	$c^3P-z^1P^o$
3062.178	A	3	2.49	6.52	0-1	(113)
2981.924	A	15	2.51	6.65	2-2	$c^3P-w^3D^o$ †
2992.378	A	2	2.51	6.64	2-1	(114)
5193.43	P		2.51	4.89	6-5	$b^3H-z^3G^o$
5227.70	A	20	2.50	4.86	5-4	(115)
5263.99	A	15	2.50	4.64	4-3	
5171.13	P		2.50	4.89	5-5	
5217.36	P		2.50	4.86	4-4	
3669.410	A	300	2.51	5.88	6-6	$b^3H-z^3H^o$
3700.337	A	200	2.50	5.84	5-5	(116)
3728.335	A	200	2.50	5.81	4-4	
3711.751	A	10	2.51	5.84	6-5	
3733.607	A	4	2.50	5.61	5-4	
3658.266	A	10	2.50	5.88	5-6	
•3695.158	A	8	2.50	5.84	4-5	
3509.024	A	40	2.51	6.03	6-5	$b^3H-y^3G^o$
3513.677	A	15	2.50	6.02	5-4	(117)
3527.867	A	10	2.50	6.00	4-3	
3496.63	P		2.50	6.03	5-5	
3509.20	P		2.50	6.02	4-4	
3446.69	A	1	2.50	6.08	5-4	$b^3H-y^3F^o$
3451.046	A	12	2.50	6.06	4-3	(116)
3420.15	A	2	2.51	6.12	6-5	$b^3H-z^1H^o$
3410.46	A	1	2.50	6.12	5-5	(119)
3406.06	A	7	2.50	6.12	4-5	
3408.955	A	15	2.50	6.12	4-3	$b^3H-z^1F^o$
						(120)
3391.01	A	1	2.50	6.14	4-4	$b^3H-z^1G^o$
						(121)
3134.926	A	200	2.51	6.45	6-6	$b^3H-y^3H^o$
3136.503	A	160	2.50	6.44	5-5	(122)
3139.733	A	160	2.50	6.43	4-4	
3144.700	A	20	2.51	6.44	6-5	
3143.477	A	15	2.50	6.43	5-4	
3126.79	A	2	2.50	6.45	5-6	
3132.793	A	3	2.50	6.44	4-5	
3033.445	A	200	2.51	6.58	6-7	$b^3H-y^3I^o$
3048.214	A	200	2.50	6.55	5-6	(123)
3063.247	A	200	2.50	6.53	4-5	
3055.942	A	7	2.51	6.55	6-6	
3066.80	A	4	2.50	6.53	5-5	
6226.29	A	10n	2.55	4.53	2-2	$b^3D-z^5F^o$
						(124)
6028.96	A	20	2.55	4.59	3-3	$b^3D-z^3D^o$
6066.93	A	15n	2.55	4.57	2-2	(125)
6063.62	A	10n	2.53	4.56	1-1	
6026.81	A	6	2.55	4.59	2-3	

V II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5916.364	A	15	2.55	4.63	3-3	$b^3D-z^5D^o$
5967.77	A	6	2.55	4.61	2-2	(126)
5914.28	A	5	2.55	4.63	2-3	
•5047.308§	A	10	2.55	4.99	3-4	$b^3D-z^3F^o$
5106.233	A	5	2.55	4.96	2-3	(127)
5132.19	A	2	2.53	4.94	1-2	
5157.28	A	2?	2.55	4.94	2-2	
3826.968	A	30	2.55	5.77	2-2	$b^3D-z^3P^o$
3813.12	A	3	2.53	5.77	1-2	(128)
3774.676	A	15	2.55	5.61	2-2	$b^3D-y^5D^o$
3773.80	A	5	2.55	5.82	2-1	(129)
3761.20	A	1	2.53	5.61	1-2	
3604.375	A	4	2.53	5.96	1-0	$b^3D-z^1S^o$
						(130)
3489.947	A	20	2.55	6.06	3-4	$b^3D-y^3F^o$
3496.27	P		2.55	6.06	2-3	(131)
m3485.82	P	V+	2.53	6.07	1-2	
m3497.00	P	V+	2.55	6.06	3-3	
3497.39	A	4	2.55	6.07	2-2	
3496.12	P		2.55	6.07	3-2	
3453.76	A	1	2.55	6.12	3-3	$b^3D-z^1F^o$
3453.087	A	90	2.55	6.12	2-3	(132)
3435.38	A	7	2.55	6.14	3-4	$b^3D-z^1G^o$
						(133)
3434.48	A	1	2.55	6.14	3-2	$b^3D-z^5S^o$
3433.767	A	3	2.55	6.14	2-2	(134)
3414.879	A	3	2.55	6.16	3-2	$b^3D-z^1D^o$
•3414.192§	A	10	2.55	6.16	2-2	(135)
3403.159	A	3	2.53	6.16	1-2	
3281.755	A	10	2.55	6.31	3-3	$b^3D-y^3D^o$
3314.662	A	50	2.55	6.27	2-2	(136)
m3337.76	P	V+	2.53	6.23	1-1	
3315.53	A	5	2.55	6.27	3-2	
3348.372	A	4	2.55	6.23	2-1	
3261.120	A	40	2.55	6.31	2-3	
3304.474	A	40	2.53	6.27	1-2	
3277.71	A	30	2.55	6.31	3-2	$b^3D-y^3P^o$
3316.907	A	20	2.55	6.26	2-1	(137)
3316.873	A	20	2.53	6.25	1-0	
3277.082	A	10	2.55	6.31	2-2	
3308.480	A	20	2.53	6.26	1-1	
3266.91	A	1?	2.53	6.31	1-2	
3120.726	A	50	2.55	6.50	3-4	$b^3D-x^3F^o$
3146.226	A	40 l	2.55	6.47	2-3	(138)
3151.319	A	100	2.53	6.45	1-2	
3146.816	A	10	2.55	6.47	3-3	
•3160.781	A	15	2.55	6.45	2-2	
3110.07	A	3?	2.55	6.51	3-3	$b^3D-x^3D^o$
3116.02	A	3	2.55	6.51	2-2	(139)
3116.11	A	2	2.53	6.49	1-1	
3106.629	A	3	2.53	6.51	1-2	
3105.973	A	5	2.55	6.52	2-1	$b^3D-z^1P^o$
						(140)
3001.754	A	30	2.55	6.66	3-3	$b^3D-w^3D^o$
3006.502	A	20	2.55	6.65	2-2	(141)
3008.506	A	15	2.53	6.64	1-1	
3007.035	A	1	2.55	6.65	3-2	
2997.945	A	6	2.53	6.65	1-2	
5202.94	A	2	2.59	4.96	2-3	$a^1D-z^3F^o$
						(142)
3881.04	A	2	2.59	5.77	2-2	$a^1D-z^3P^o$
						(143)
3622.289	A	10	2.59	6.00	2-3	$a^1D-y^3G^o$
						(144)
3541.341	A	50	2.59	6.08	2-3	$a^1D-y^3F^o$
3542.480	A	4	2.59	6.07	2-2	(145)
3497.031	A	200	2.59	6.12	2-3	$a^1D-z^1F^o$
						(146)
3457.153	A	300	2.59	6.16	2-2	$a^1D-z^1D^o$
						(147)
3359.50	A	2	2.59	6.26	2-1	$a^1D-y^3P^o$
						(148)
3320.780	A	4	2.59	6.31	2-3	$a^1D-y^3D^o$
3355.366	A	20	2.59	6.27	2-2	(149)
3182.674	A	20	2.59	6.47	2-3	$a^1D-x^3F^o$
3197.574	A	7	2.59	6.45	2-2	(150)
3161.313	A	30	2.59	6.49	2-1	$a^1D-x^3D^o$
						(151)
3141.466	A	40	2.59	6.52	2-1	$a^1D-z^1P^o$
						(152)
3039.767	A	2	2.59	6.65	2-2	$a^1D-w^3D^o$
						(153)
2963.249	A	9	2.59	6.75	2-1	$a^1D-x^3P^o$
						(154)
4038.545	A	2	2.75	5.81	1-0	$a^1P-y^5D^o$
						(155)
•3847.323§	A	100	2.75	5.96	1-0	$a^1P-z^1S^o$
						(156)
3712.533	A	8	2.75	6.07	1-2	$a^1P-y^3F^o$
						(157)
3618.924	A	200	2.75	6.16	1-2	$a^1P-z^1D^o$
						(158)
3507.534	A	20	2.75	6.27	1-2	$a^1P-y^3D^o$
						(159)
3465.25	A	4	2.75	6.31	1-2	$a^1P-y^3P^o$
						(160)
3335.462	A	10	2.75	6.45	1-2	$a^1P-x^3F^o$
						(161)
3285.672	A	3	2.75	6.51	1-2	$a^1P-x^3D^o$
3296.052	A	8	2.75	6.49	1-1	(162)

V II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3274.50	A	10	2.75	6.52	1-1	$a^1P-z^1P^o$ (163)
3061.30	A	10	2.75	6.75	1-1	$a^1P-x^3P^o$ (164)
3926.32	A	5	2.69	6.03	5-5	$a^1H-y^3G^o$
3945.27	P		2.69	6.02	5-4	(165)
3815.36	A	200	2.89	6.12	5-5	$a^1H-z^1H^o$ (166)
*3796.48 §	A	10	2.69	6.14	5-4	$a^1H-z^1G^o$ (167)
3463.631	A	4	2.69	6.45	5-6	$a^1H-y^3H^o$
3484.32	A	2	2.69	6.43	5-4	(168)
3415.91	A	2	2.69	6.50	5-4	$a^1H-x^3F^o$ (169)
3367.666	A	3	2.69	6.55	5-6	$a^1H-z^3I^o$ (170)
3250.775	A	200	2.69	6.68	5-4	$a^1H-y^1G^o$ (171)
3142.163	A	20	2.69	6.82	5-5	$a^1H-x^3G^o$ (172)
3122.667	A	100	2.89	6.64	5-6	$a^1H-z^1I^o$ (173)
3113.560	A	100	2.69	6.65	5-5	$a^1H-y^1H^o$ (174)
4162.072	A	2	3.11	6.06	2-3	$b^1D-y^3F^o$
4163.655	A	2	3.11	6.07	2-2	(175)
*4101.00 §	A	6	3.11	6.12	2-3	$b^1D-z^1F^o$ (176)
4048.369	A	50	3.11	6.16	2-2	$b^1D-z^1D^o$ (177)
3907.52	A	3	3.11	6.27	2-2	$b^1D-y^3D^o$ (178)
*3695.158	A	6	3.11	6.45	2-2	$b^1D-x^3F^o$ (179)
3634.13	A	1	3.11	6.51	2-2	$b^1D-x^3D^o$
3648.648	A	7	3.11	6.49	2-1	(160)
3620.496	A	20	3.11	6.52	2-1	$b^1D-z^1P^o$ (161)
3476.961	A	6	3.11	6.66	2-3	$b^1D-w^3D^o$ (162)
3365.790	A	3	3.11	6.75	2-1	$b^1D-x^3P^o$ (163)
3337.645	A	200	3.11	6.61	2-3	$b^1D-y^1F^o$ (164)
3226.924	A	40	3.11	6.93	2-1	$b^1D-y^1P^o$ (165)
3109.375	A	20	3.11	7.08	2-2	$b^1D-y^1D^o$ (186)
4396.52	A	4n	3.31	6.12	3-3	$a^1F-z^1F^o$ (167)
4368.67	P		3.31	6.14	3-4	$a^1F-z^1G^o$ (168)
3960.37	A	1	3.31	6.43	3-4	$a^1F-y^3H^o$ (189)
3690.70	A	1	3.31	6.66	3-3	$a^1F-w^3D^o$ (190)
3661.383	A	200	3.31	6.68	3-4	$a^1F-y^1G^o$ (191)
3532.265	A	20	3.31	6.61	3-3	$a^1F-y^1F^o$ (192)
3512.13	A	3	3.31	6.63	3-4	$a^1F-x^3G^o$
3506.57	A	7	3.31	6.63	3-3	(193)
3277.448	A	15	3.31	7.06	3-2	$a^1F-y^1D^o$ (194)
*5275.65 §	A	10	3.74	6.06	4-4	$c^3F-y^3F^o$
5266.31	A	5	3.74	6.08	3-3	(195)
5260.00	A	3?	3.74	6.07	2-2	
5151.67	A	2	3.74	6.14	4-4	$c^3F-z^1G^o$ (196)
4813.952	A	50	3.74	6.31	4-3	$c^3F-y^3D^o$
4864.06	A	50	3.74	6.27	3-2	(197)
4947.58	A	40	3.74	6.23	2-1	
4811.14	A	6	3.74	6.31	3-3	
4874.805	A	4	3.74	6.27	2-2	
4475.24	A	1	3.74	6.50	4-4	$c^3F-x^3F^o$
4529.06	A	5?	3.74	6.47	4-3	(198)
4556.765	A	4	3.74	6.45	3-2	
4453.35	A	30n	3.74	6.51	4-3	$c^3F-x^3D^o$
4464.32	A	40n	3.74	6.51	3-2	(199)
4475.70	A	20n	3.74	6.49	2-1	
4456.53	A	3n	3.74	6.51	2-2	
*4234.55 §	A	40n	3.74	6.66	4-3	$c^3F-w^3D^o$
4242.694	A	30n	3.74	6.65	3-2	(200)
4257.02	A	15n	3.74	6.64	2-1	
4027.30	A	1	3.74	6.61	4-3	$c^3F-y^1F^o$
4019.05	A	7n	3.74	6.61	2-3	(201)
4016.82	A	20n	3.74	6.62	4-5	$c^3F-x^3G^o$
3999.195	A	30n	3.74	6.83	3-4	(202)
3985.763	A	30	3.74	6.63	2-3	
4001.17	A	2	3.74	6.83	4-4	
*3991.965	A	2	3.74	6.63	3-3	
3970.15	A	5	3.74	6.65	4-5	$c^3F-y^1H^o$ (203)
3697.72	A	1	3.74	7.06	3-2	$c^3F-y^1D^o$ (204)
3138.05	A	20	3.74	7.66	4-4	$c^3F-w^3F^o$
3141.07	A	2	3.74	7.67	3-3	(205)

V II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
6080.11	A	6	3.76	5.81	4-4	$d^3F-z^3H^o$ (206)
*5290.74 §	A	6	3.79	6.12	2-3	$d^3F-z^1F^o$ (207)
5191.59	A	2	3.76	6.16	3-2	$d^3F-z^1D^o$ (208)
4863.415	A	100	3.76	6.31	4-3	$d^3F-y^3D^o$
4965.40	A	40	3.76	6.27	3-2	(209)
5048.91	A	15	3.79	6.23	2-1	
4973.16	A	2	3.79	6.27	2-2	
4535.215	A	3n	3.76	6.50	4-4	$d^3F-x^3F^o$
4596.37	A	5n	3.76	6.47	3-3	(210)
4634.31	A	3n	3.79	6.45	2-2	
4590.505	A	7n	3.76	6.47	4-3	
4627.48	A	1	3.76	6.45	3-2	
4517.35	A	3n	3.79	6.52	2-1	$d^3F-z^1P^o$ (211)
4512.72	A	60n	3.76	6.51	4-3	$d^3F-x^3D^o$
4532.188	A	40n	3.78	6.51	3-2	(212)
4558.46	A	20	3.79	6.49	2-1	
4516.36	A	2n	3.76	6.51	3-3	
4536.64	A	2	3.79	6.51	2-2	
4524.61	P		3.79	6.51	2-3	
4304.15	A	2	3.76	6.65	3-2	$d^3F-w^3D^o$ (213)
4080.44	A	2	3.76	6.61	3-3	$d^3F-y^1F^o$
4065.67	A	10n	3.79	6.81	2-3	(214)
4065.070	A	100	3.76	6.82	4-5	$d^3F-x^3G^o$
4053.59	A	60 l	3.76	6.63	3-4	(215)
*4051.34 §	A	100	3.79	6.63	2-3	
4049.03	A	3	3.76	6.63	4-4	
4017.29	A	15n	3.76	6.65	4-5	$d^3F-y^1H^o$ (216)
3167.420	A	40	3.78	7.68	4-4	$d^3F-w^3F^o$
3174.531	A	60	3.78	7.67	3-3	(217)
3162.59	A	20	3.79	7.66	2-2	
3171.739	A	9	3.76	7.67	4-3	
3179.416	A	6	3.76	7.66	3-2	
3170.206	A	6	3.76	7.68	3-4	
3177.696	A	6	3.79	7.67	2-3	
2973.975	A	40	3.76	7.93	4-5	$d^3F-w^3G^o$ †
2965.164	A	60n	3.76	7.92	3-4	(218)
2994.540	A	60	3.79	7.91	2-3	
6601.16	A	5	3.96	5.77	2-2	$d^3P-z^3P^o$ (219)
5249.22	A	1?	3.96	6.31	2-3	$d^3P-y^3D^o$ (220)
4963.75	A	2	3.96	6.44	2-1	$d^3P-z^3S^o$ (221)
4912.36	A	2	3.96	6.47	2-3	$d^3P-x^3F^o$ (222)
4823.396	A	6	3.96	6.51	2-3	$d^3P-x^3D^o$
4839.08	A	3	3.96	6.51	2-2	(223)
4406.92	A	40N?	3.96	6.75	2-2	$d^3P-x^3P^o$
4440.41	A	5n	3.99	6.77	1-0	(224)
4483.50	A	2n	4.00	6.75	0-1	
4232.065	A	80n	3.96	6.67	2-1	$d^3P-y^3S^o$
4276.693	A	60n	3.99	6.67	1-1	(225)
4301.130	A	40n	4.00	6.67	0-1	
*4142.90 §	A	6	3.96	6.93	2-1	$d^3P-y^1P^o$ (226)
*3991.965	A	2	3.99	7.06	1-2	$d^3P-y^1D^o$ (227)
3070.12	A	25 l	3.96	7.96	2-3	$d^3P-v^3D^o$
3075.58	A	5	3.99	6.00	1-2	(228)
3075.043	A	3	4.00	6.02	0-1	
3051.306	A	3	3.96	6.00	2-2	
6672.64	A	3n	4.23	6.06	3-3	$b^1F-y^3F^o$ (229)
6517.27	A	15n	4.23	6.12	3-3	$b^1F-z^1F^o$ (230)
6360.11	A	40n	4.23	6.16	3-2	$b^1F-z^1D^o$ (231)
5019.655	A	100n	4.23	6.68	3-4	$b^1F-y^1G^o$ (232)
4325.22	A	9n	4.23	7.06	3-2	$b^1F-y^1D^o$ (233)
3343.312	A	2	4.23	7.92	3-4	$b^1F-w^3G^o$
3351.53	A	1	4.23	7.91	3-3	(234)
3293.146	A	50	4.23	7.97	3-2	$b^1F-x^1D^o$ (235)
3167.49	A	30	4.23	6.12	3-4	$b^1F-x^1G^o$ (236)
3116.76	A	40	4.23	6.19	3-3	$b^1F-x^1F^o$ (237)
5642.01	A	80n	4.50	6.68	4-4	$c^1G-y^1G^o$ (238)
5341.22	A	2	4.50	6.61	4-3	$c^1G-y^1F^o$ (239)
5322.61	A	5	4.50	6.62	4-5	$c^1G-x^3G^o$ (240)
5241.19	A	100n	4.50	6.65	4-5	$c^1G-y^1H^o$ (241)
3608.32	A	1	4.50	7.92	4-4	$c^1G-w^3G^o$ (242)
3404.43	A	60 l	4.50	6.12	4-4	$c^1G-x^1G^o$ (243)
3345.699	A	70	4.50	6.19	4-3	$c^1G-x^1F^o$ (244)

V II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3035.14	A	3N	4.89	8.96	5-4	$z^3G^o-e^5H$ (245)
3036.00	A	2N?	4.94	9.00	2-3	$z^3F^o-e^5P$ (246)
5530.10	A	4	5.44	7.66	3-4	$c^3D-w^3F^o$
5562.02	A	4np?	5.45	7.67	2-3	(247)
m4875.49	P	V	5.44	7.98	3-3	$c^3D-v^3D^o$
4842.50	A	2n	5.45	6.00	2-2	(248)
4613.00	A	1?	5.45	6.02	2-1	
3148.738	A	15	5.44	9.36	3-3	$c^3D-t^3D^o$
3163.76	A	10	5.45	9.35	2-2	(249)
3172.230	A	7	5.46	9.35	1-1	
3154.60	A	1	5.45	9.36	2-3	
3071.77	A	2n	5.44	9.46	3-4	$c^3D-u^3F^o$ (250)
5016.60	A	4	5.51	7.97	2-2	$c^1D-x^1D^o$ (251)
4618.52	A	3	5.51	8.19	2-3	$c^1D-x^1F^o$ (252)

Strongest Unclassified Lines of V II

5791.47	A	15
3611.58	A	10n
3301.66	A	10
3206.16	A	15Nl
3201.58	A	15Nl
3195.50	A	15Nl

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4254.346//	C	1000R	0.00	2.90	3-4	$a^7S-z^7P^o$
4274.603	C	800R	0.00	2.89	3-3	(1)
4289.721	C	700R	0.00	2.86	3-2	
3732.032	C	50	0.00	3.31	3-3	$a^7S-z^5P^o$
3730.607	C	40	0.00	3.31	3-2	(2)
3615.645	C	30	0.00	3.41	3-4	$a^7S-z^7D^o$
3635.261	C	10	0.00	3.39	3-3	(3)
3576.687	C	1000R	0.00	3.45	3-4	$a^7S-y^7P^o$
3593.466	C	900R	0.00	3.43	3-3	(4)
3605.333	C	750R	0.00	3.42	3-2	
3351.966	C	12	0.00	3.66	3-3	$a^7S-y^5P^o$
3379.171	C	15	0.00	3.65	3-2	(5)
6330.101	C	40	0.94	2.89	2-3	$a^5S-z^7P^o$
6362.674	C	30	0.94	2.88	2-2	(6)
5206.436	C	500R	0.94	3.31	2-3	$a^5S-z^5P^o$
5206.039	C	300R	0.94	3.31	2-2	(7)
5204.516	C	200R	0.94	3.31	2-1	
5021.903	C	25	0.94	3.39	2-3	$a^5S-z^7D^o$
5051.900	C	40	0.94	3.38	2-2	(8)
5072.920	C	60	0.94	3.37	2-1	
4942.495	C	200	0.94	3.43	2-3	$a^5S-y^7P^o$
4964.926	C	100	0.94	3.42	2-2	(9)
4496.862	C	100	0.94	3.68	2-3	$a^5S-y^5P^o$
4545.956	C	50	0.94	3.65	2-2	(10)
4580.056	C	40	0.94	3.63	2-1	
3633.49	B	4	0.94	4.16	2-3	$a^5S-z^5D^o$
3652.58	B	15	0.94	4.14	2-2?	(11)
3670.267	C	25n	0.94	4.13	2-1	
3756.72	B	4	0.94	4.22	2-2	$a^5S-z^3P^o$ (12)
3192.12	B	5	0.94	4.60	2-3	$a^5S-z^5D^o$
3210.62	B	2	0.94	4.78	2-2	(13)
2968.649	C	25r	0.94	5.07	2-3	$a^5S-x^5P^o$
2994.069	C	18	0.94	5.06	2-2	(14)
2996.787	C	20	0.94	5.05	2-1	
2964.82	B	6	0.94	5.07	2-3	$a^5S-y^5F^o$
2995.10	B	25	0.94	5.06	2-2	(15)
6580.96	B	6	1.03	2.90	4-4	$a^5D-z^7P^o$
6537.921	D	20	1.00	2.89	3-3	(16)
6501.212	D	15	0.98	2.88	2-2	
6630.015	C	25	1.03	2.89	4-3	
6572.900	C	15	1.00	2.88	3-2	
5796.46	B	25	1.03	3.15	4-5	$a^5D-z^7F^o$
5790.59	P		1.00	3.13	3-4	(17)
*5785.66	F	(5d?)	0.98 0.96	3.11 3.10	2-3 1-2	
5409.791	C	500	1.03	3.31	4-3	$a^5D-z^5P^o$
5345.607	C	500	1.00	3.31	3-2	(16)
5296.686	C	100	0.96	3.31	2-1	
5348.319	C	350	1.00	3.31	3-3	
5298.269	C	100	0.98	3.31	2-2	
5264.152	C	200	0.96	3.31	1-1	
5300.749	C	75	0.98	3.31	2-3	
5265.722	C	100	0.96	3.31	1-2	
5247.564	C	150	0.96	3.31	0-1	

Cr I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5123.121	C	30	1.03	3.44	4-5	$a^5D-z^7P^o$ †
5112.490	C	25	1.00	3.41	3-4	(19)
5107.70	B	7	0.98	3.39	2-3	
5168.63	B	8	1.03	3.41	4-4	
5151.83	B	12	1.00	3.39	3-3	
5138.71	B	10	0.98	3.38	2-2	
5183.41	B	10	1.00	3.38	3-2	
5093.41	B	7	1.03	3.45	4-4	$a^5D-y^7P^o$
5068.290	C	35	1.00	3.43	3-3	(20)
5048.752	C	25	0.98	3.42	2-2	
5123.465	C	35	1.03	3.43	4-3	
5091.890	C	30	1.00	3.42	3-2	
5038.87	P		1.00	3.45	3-4	
5025.54	B	10	0.98	3.43	2-3	
5019.20	B	20	0.96	3.42	1-2	
4646.174	C	100	1.03	3.68	4-3	$a^5D-y^5P^o$
4652.158	C	100	1.00	3.65	3-2	(21)
4651.285	C	75	0.98	3.63	2-1	
4600.752	C	75	1.00	3.88	3-3	
4616.137	C	75	0.98	3.65	2-2	
4626.188	C	65	0.96	3.63	1-1	
4565.512	C	50	0.98	3.68	2-3	
4591.394	C	60	0.96	3.65	1-2	
4613.373	C	60	0.96	3.63	0-1	
4351.770	C	100	1.03	3.86	4-5	$a^5D-z^5F^o$
4344.507	C	100	1.00	3.84	3-4	(22)
4339.450	C	75	0.98	3.82	2-3	
4337.566	C	75	0.96	3.81	1-2	
4339.718	C	60	0.96	3.80	0-1	
4384.977	C	75	1.03	3.84	4-4	
4371.279	C	75	1.00	3.82	3-3	
4359.631	C	75	0.98	3.81	2-2	
4351.051	C	75	0.96	3.80	1-1	
4412.250	C	40	1.03	3.82	4-3	
4391.753	C	40	1.00	3.81	3-2	
4373.254	C	35	0.98	3.80	2-1	
3919.159	C	100	1.03	4.17	4-4	$a^5D-z^5D^o$
3908.755	C	100	1.00	4.16	3-3	(23)
3902.915	C	50	0.98	4.14	2-2	
3903.164	C	25	0.96	4.13	1-1	
3941.490	C	60	1.03	4.18	4-3	
3928.636	C	60	1.00	4.14	3-2	
3921.022	C	50	0.98	4.13	2-1	
3916.243	C	25	0.96	4.12	1-0	
3886.789	C	50	1.00	4.17	3-4	
3883.292	C	60	0.98	4.16	2-3	
3885.218	C	40	0.96	4.14	1-2	
3894.035	C	40	0.96	4.13	0-1	
3831.032	C	12	1.00	4.22	3-2	$a^5D-z^3P^o$
3849.534	C	40	0.98	4.18	2-1	(24)
3852.218	C	30	0.96	4.17	1-0	
3806.55	B	5	0.98	4.22	2-2	
3832.32	B	5	0.96	4.18	1-1	
3789.723	C	15	0.96	4.22	1-2	
3823.522	C	12	0.86	4.18	0-1	
3266.634	C	7	1.03	4.80	4-3	$a^5D-z^3D^o$
3263.25	P		1.00	4.78	3-2	(25)
3259.60	B	1	0.98	4.76	2-1	
3244.115	C	7	1.00	4.80	3-3	
3245.485	C	10	0.98	4.78	2-2	
3247.274	C	4	0.96	4.76	1-1	
3226.55	B	4	0.98	4.80	2-3	
3233.234	C	7	0.96	4.78	1-2	
3240.951	C	8	0.96	4.78	0-1	
3053.880	C	50r	1.03	5.07	4-3	$a^5D-x^5P^o$
3039.780	C	7	1.00	5.06	3-2	(26)
3029.164	C	18	0.98	5.05	2-1	
3034.190	C	25	1.00	5.07	3-3	
3024.350	C	40r	0.98	5.06	2-2	
3018.496	C	10r	0.96	5.05	1-1	
3018.821	C	10r	0.98	5.07	2-3	
3013.713	C	20r	0.96	5.06	1-2	
3013.030	C	15	0.96	5.05	0-1	
3021.558	C	50r	1.03	5.11	4-5	$a^5D-y^5F^o$
3017.569	C	35r	1.00	5.09	3-4	(27)
3014.915	C	20r	0.98	5.07	2-3	
3014.760	C	18r	0.98	5.06	1-2	
3015.194	C	18r	0.96	5.05	0-1	
3037.044	C	15	1.03	5.09	4-4	
3030.245	C	25r	1.00	5.07	3-3	
3025.40	P		0.98	5.08	2-2	
3020.673	C	8	0.96	5.05	1-1	
3049.883	C	3	1.03	5.07	4-3	
3040.848	C	10r	1.00	5.08	3-2	
3031.353	C	7	0.98	5.05	2-1	
2986.473	C	30r	1.03	5.16	4-4	$a^5D-y^5D^o$
2985.995	C	35r	1.00	5.13	3-3	(28)
2985.849	C	8r	0.98	5.11	2-2	
2988.137	C	3	0.96	5.10	1-1	
3005.057	C	25r	1.03	5.13	4-3	
3000.890	C	25r	1.00	5.11	3-2	
2998.580	C	15r	0.98	5.10	2-1	
2991.888	C	15	0.98	5.09	1-0	
2967.842	C	15	1.00	5.18	3-4	
2971.112	C	20	0.88	5.13	2-3	
2975.483	C	20	0.98	5.11	1-2	
2980.791	C	25	0.98	5.10	0-1	
9290.44	A	50	2.53	3.86	6-5	$a^5G-z^5F^o$
*9447.00	A	50	2.53	3.84	5-4	(29)
9574.25	A	50	2.53	3.82	4-3	
9670.48	A	50	2.53	3.81	3-2	
9734.52	A	50	2.53	3.80	2-1	

Cr I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
*9294.17	A	20	2.53	3.86	5-5	$a^5G-z^5F^o$
*9447.00	A	50	2.53	3.84	4-4	cont
9571.76	A	25	2.53	3.82	3-3	
9667.20	A	25	2.53	3.81	2-2	
*9294.17	A	20	2.53	3.88	4-5	
8444.36	A	5	2.53	3.84	3-4	
9568.58	A	4	2.53	3.82	2-3	
4872.02	B	18	2.53	5.07	4-3	$a^5G-x^5P^o$ †
4885.776	C	75	2.53	5.06	3-2	(30)
4789.354	D	75	2.53	5.11	6-5	$a^5G-y^5F^o$
*4829.376	C	100d?	2.53	5.09	5-4	(31)
4861.842	C	75	2.53	5.07	4-3	
4888.530	C	40	2.53	5.06	3-2	
4903.239	C	70	2.53	5.05	2-1	
*4790.337	C	20	2.53	5.11	5-5	
*4829.376	C	100d?	2.53	5.09	4-4	
4861.205	C	35	2.53	5.07	3-3	
4887.73	B	25	2.53	5.08	2-2	
*4790.337	C	20	2.53	5.11	4-5	
4828.66	B	8	2.53	5.09	3-4	
4860.37	B	7	2.53	5.07	2-3	
4571.876	C	40	2.53	5.23	6-7	$a^5G-z^5H^o$
4601.021	C	30	2.53	5.22	5-6	(32)
4621.893	C	45*	2.53	5.20	4-5	
4637.182	C	40	2.53	5.19	3-4	
4648.126	C	25	2.53	5.19	2-3	
4600.104	C	40	2.53	5.22	6-6	
*4821.983	C	45*	2.53	5.20	5-5	
*4637.772	C	40	2.53	5.19	4-4	
4648.868	C	35	2.53	5.18	3-3	
4621.00	B	4	2.53	5.20	6-5	
*4837.772	C	40	2.53	5.19	5-4	
4649.461	C	45	2.53	5.18	4-3	
4526.466	C	75	2.53	5.26	6-8	$a^5G-z^5G^o$
4530.755	D	100*	2.53	5.26	5-5	(33)
*4535.731	C	80	2.53	5.25	4-4	
4540.502	C	50	2.53	5.25	3-3	
4544.819	C	50	2.53	5.25	2-2	
4529.851	C	25	2.53	5.26	6-5	
*4535.731	C	60	2.53	5.25	5-4	
4541.071	C	30	2.53	5.25	4-3	
4545.335	C	25	2.53	5.25	3-2	
*4527.339	C	40	2.53	5.26	5-6	
4530.688	D	100*	2.53	5.26	4-5	
4535.148	C	35	2.53	5.25	3-4	
4539.788	C	30	2.53	5.25	2-3	
m4466.13	P	Cr	2.53	5.30	5-4	$a^5G-x^5D^o$ †
*4518.63	B	8	2.53	5.26	4-3	(34)
4581.20	B	2	2.53	5.24	3-2	
4126.521	C	20	2.53	5.52	6-6	$a^5G-y^5G^o$
*4153.816	C	25	2.53	5.50	5-5	(35)
*4163.625	D	20	2.53	5.50	4-4	
4191.271	C	25	2.53	5.48	3-3	
4203.590	C	18	2.53	5.47	2-2	
4153.087	C	9	2.53	5.50	6-5	
*4183.625	D	20	2.53	5.50	5-4	
4191.750	C	10	2.53	5.48	4-3	
4204.19	B	8	2.53	5.47	3-2	
4127.302	C	7	2.53	5.52	5-8	
*4153.816	C	25	2.53	5.50	4-5	
4183.16	P		2.53	5.50	3-4	
4190.68	B	4	2.53	5.48	2-3	
4033.263	C	6	2.53	5.59	6-5	$a^5G-x^5F^o$
*4037.294	C	10	2.53	5.59	5-4	(38)
4042.246	C	8	2.53	5.59	4-3	
4046.760	C	6	2.53	5.58	3-2	
4050.02	B	4	2.53	5.58	2-1	
*4033.95	B	3	2.53	5.59	5-5	
*4037.294	C	10	2.53	5.59	4-4	
4041.79	B	6	2.53	5.59	3-3	
4046.19	B	3	2.53	5.58	2-2	
*4033.85	B	3	2.53	5.59	4-5	
4038.80	B	1	2.53	5.59	3-4	
4027.103	C	20	2.53	5.60	5-8	$a^5G-z^3H^o$
*4036.166	C	18	2.53	5.60	4-5	(37)
4025.012	C	15	2.53	5.80	3-4	
*4028.166	C	18	2.53	5.80	5-5	
*4025.44	B	5	2.53	5.80	4-4	
			2.53	5.60	5-4	
3983.890	C	100	2.53	5.85	6-7	$a^5G-y^5H^o$
3988.748	C	70	2.53	5.84	5-6	(38)
*3976.665	C	100	2.53	5.64	4-5	
3983.907	C	100	2.53	5.83	3-4	
3991.123	C	80	2.53	5.83	2-3	
*3989.081	C	18	2.53	5.64	6-8	
*3978.665	C	100	2.53	5.64	5-5	
*3984.338	C	25	2.53	5.83	4-4	
3991.873	C	25	2.53	5.83	3-3	
3978.01	B	5	2.53	5.84	6-5	
*3984.338	C	25	2.53	5.63	5-4	
3882.11	B	4	2.53	5.83	4-3	
*3880.13	B	5	2.53	5.73	5-4	$a^5G-w^5D^o$
			2.53	5.73	4-4	(39)
3817.844	C	10	2.53	5.77	6-5	$a^5G-w^5F^o$
*3818.173	C	20	2.53	5.77	5-4	(40)
3820.874	C	7	2.53	5.78	4-3	
3823.10	B	5	2.53	5.76	3-2	
*3818.481	C	25	2.53	5.77	5-5	
*3818.173	C	20	2.53	5.77	4-4	
3821.582	C	8	2.53	5.76	2-2	
*3818.481	C	25	2.53	5.77	4-5	
3818.97	B	5	2.53	5.76	2-3	

Cr I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3777.32	B	5	2.53	5.80	6-5	$a^5G-z^3G^o$
3789.49	B	2	2.53	5.78	5-4	(41)
*3777.93	B	3	2.53	5.80	5-5	
			2.53	5.60	4-5	
3796.99	B	5	2.53	5.78	2-3	
*3767.431	C	12	2.53	5.81	6-5	$a^5G-y^3G^o$
*3768.08	B	18	2.53	5.81	5-4	(42)
3769.00	B	7	2.53	5.81	4-3	
*3768.08	B	18	2.53	5.81	5-5	
			2.53	5.81	4-4	
3768.62	B	7	2.53	5.81	3-3	
*3768.08	B	18	2.53	5.81	4-5	
3743.884	C	50	2.53	5.83	6-6	$a^5G-x^5G^o$
*3743.578	C	45	2.53	5.83	5-5	(43)
*3748.998	C	50	2.53	5.83	4-4	
3757.662	C	50	2.53	5.82	3-3	
3768.240	C	35	2.53	5.81	2-2	
3742.968	C	18	2.53	5.83	6-5	
*3748.998	C	50	2.53	5.83	5-4	
3758.044	C	15	2.53	5.82	4-3	
3768.734	C	15	2.53	5.81	3-2	
3744.490	C	18	2.53	5.83	5-6	
*3743.578	C	45	2.53	5.83	4-5	
3748.614	C	12	2.53	5.83	3-4	
3757.174	C	18	2.53	5.82	2-3	
3685.548	C	50w	2.53	5.88	6-5	$a^5G-v^5F^o$
*3688.803	C	45w	2.53	5.88	5-4	(44)
3887.252	C	50w	2.53	5.88	4-3	
*3688.18	B	5w	2.53	5.88	5-5	
*3886.803	C	45w	2.53	5.88	4-4	
*3686.18	B	5w	2.53	5.88	4-5	
3879.070	C	8	2.53	5.89	6-7	$a^5G-z^3I^o$
3688.11	B	7	2.53	5.88	5-6	(45)
*3694.12	B	4	2.53	5.87	4-5	
3687.545	C	20	2.53	5.88	6-6	
*3684.12	B	4	2.53	5.87	5-5	
3683.56	B	2	2.53	5.87	6-5	
*3658.261	C	50	2.53	5.91	5-4	$a^5G-v^5D^o$
3663.206	C	40	2.53	5.90	4-3	(46)
3866.642	C	25	2.53	5.90	3-2	
3668.029	C	15	2.53	5.80	2-1	
*3656.261	C	50	2.53	5.91	4-4	
3862.840	C	15	2.53	5.90	3-3	
3688.19	B	8	2.53	5.90	2-2	
3655.92	P		2.53	5.91	3-4	
3682.39	B	2	2.53	5.80	2-3	
3639.602	C	100	2.53	5.92	6-5	$a^5G-u^5F^o$
*3836.590	C	50	2.53	5.93	5-4	(47)
3641.830	C	50	2.53	5.92	4-3	
3648.987	C	50	2.53	5.92	3-2	
3653.912	C	45	2.53	5.91	2-1	
*3640.39	B	20	2.53	5.92	5-5	
*3638.590	C	50	2.53	5.93	4-4	
3641.470	C	15	2.53	5.92	3-3	
3648.534	C	15	2.53	5.92	2-2	
*3640.39	B	20	2.53	5.92	4-5	
3636.21	B	2	2.53	5.93	3-4	
3641.01	B	3+g?	2.53	5.92	2-3	
3619.460	C	10	2.53	5.94	6-7	$a^5G-x^5H^o$
3646.161	C	12	2.53	5.92	5-6	(48)
*3665.960	C	12	2.53	5.90	4-5	
3879.619	C	10	2.53	5.89	3-4	
3686.457	C	10	2.53	5.88	2-3	
3645.59	B	5	2.53	5.92	6-6	
*3665.960	C	12	2.53	5.90	5-5	
*3880.19	B	7	2.53	5.69	4-4	
3665.43	B	4	2.53	5.90	6-5	
*3680.19	B	7	2.53	5.89	5-4	
3689.302	C	8	2.53	5.88	4-3	
*3632.839	C	40	2.53	5.93	5-4	$a^5G-u'^5F^o$
m3805.41	P	Cr	2.53	5.96	4-3	(49)
3609.479	C	18	2.53	5.95	3-2	
3610.052	C	10	2.53	5.95	2-1	
*3632.839	C	40	2.53	5.93	4-4	
3605.05	P		2.53	5.96	3-3	
3609.04	B	4	2.53	5.85	2-2	
3832.46	B	1	2.53	5.93	3-4	
*3604.54	B	3	2.53	5.96	2-3	
3538.89	B	1	2.53	6.02	6-5?	$a^5G-x^3G^o$
*3565.55	B	2	2.53	5.99	5-4	(50)
*3537.25	B	4d?	2.53	6.02	5-5	
*3565.55	B	2	2.53	5.89	4-4	
*3537.25	B	4d?	2.53	6.02	4-5	
3565.15	B	3	2.53	5.99	3-4	
3445.10	B	7	2.53	6.12	6-5	$a^5G-u^3G^o$
*3455.602	C	35	2.53	6.11	5-4	(51)
3465.57	B	5	2.53	6.09	4-3	
*3445.818	C	40	2.53	6.12	5-5	
*3455.802	C	35	2.53	6.11	4-4	
3485.245	D	15	2.53	6.09	3-3	
*3445.818	C	40	2.53	8.12	4-5	
3455.281	C	10	2.53	8.11	3-4	
3464.82	B	5	2.53	8.09	2-3	
3433.598	C	50	2.53	6.13	6-6	$a^5G-w^5G^o$
*3438.187	C	50	2.53	6.13	5-5	(52)
*3441.438	C	35	2.53	6.12	4-4	
3447.430	C	30	2.53	6.11	3-3	
3453.328	C	35	2.53	6.11	2-2	
3435.679	C	10	2.53	6.13	6-5	
*3441.438	C	35	2.53	6.12	5-4	
3447.760	C	20	2.53	6.11	4-3	
3453.743	C	12	2.53	8.11	3-2	
3434.112	C	20	2.53	6.13	5-6	
*3436.167	C	50	2.53	8.13	4-5	
3441.115	C	9	2.53	6.12	3-4	
3447.015	C	12	2.53	6.11	2-3	

Cr I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
•3435.819	C	6d	2.53	6.13	5-4	$a^5G-x^3F^o$ (53)
3432.31	B	8	2.53	6.13	4-3	
3431.69	C	4	2.53	6.13	3-2	
•3435.819	C	6d	2.53	6.13	4-4	
3431.995	D	7	2.53	6.13	3-3	
3431.284	C	10	2.53	6.13	2-2	
3435.488	C	3	2.53	6.13	3-4	
3431.59	C	3	2.53	6.13	2-3	
3382.213	C	20	2.53	6.20	6-5	$a^5G-t^5F^o$ (54)
•3367.53	C	15w	2.53	6.20	5-4	
•3379.825§	C	8	2.53	6.19	4-3	
3384.65	B	10w	2.53	6.18	3-2	
3388.71	B	10	2.53	6.17	2-1	
•3362.70	B	8	2.53	8.20	5-5	
•3367.53	C	15w	2.53	6.20	4-4	
3379.564	C	3w	2.53	6.19	3-3	
3384.24	B	3w	2.53	6.18	2-2	
•3362.70	B	8	2.53	6.20	4-5	
3081.652	C	5	2.53	6.56	6-5	$a^5G-s^5F^o$ (55)
3067.22	P		2.53	6.58	5-4	
3071.69	P		2.53	6.55	4-3	
3074.47	B	3	2.53	6.55	3-2	
3076.58	B	3	2.53	6.54	2-1	
8348.28	A	20	2.70	4.17	3-4	$a^5P-z^5D^o$ (56)
8455.24	A	12	2.70	4.18	2-3	
8555.54	A	5	2.70	4.14	1-2	
8450.36	A	15	2.70	4.16	3-3	
8548.83	A	12	2.70	4.14	2-2	
8643.03	A	12	2.70	4.13	1-1	
8543.72	A	10	2.70	4.14	3-2	
8636.26	A	10	2.70	4.13	2-1	
8707.42	A	7	2.70	4.12	1-0	
8296.90	A	4	2.70	4.18	2-1	$a^5P-z^3P^o$ (57)
8397.04	A	6	2.70	4.17	1-0	
8303.19	A	6	2.70	4.18	1-1	
5225.821	C	50	2.70	5.06	3-2	$a^5P-y^5F^o$ (58)
5227.75	B	25	2.70	5.06	2-2	
5230.228	C	40	2.70	5.06	1-2	
m5206.15	P	Cr	2.70	5.07	3-3	$a^5P-x^5P^o$ (59)
•5224.541	C	45	2.70	5.06	2-2	
5241.458	C	30	2.70	5.05	1-1	
5222.678	C	30	2.70	5.06	3-2	
5238.971	C	65	2.70	5.05	2-1	
m5208.07	P	Cr	2.70	5.07	2-3	
5227.10	B	20	2.70	5.06	1-2	
5013.316	C	100	2.70	5.18	3-4	$a^5P-y^5D^o$ (60)
5067.714	C	75	2.70	5.13	2-3	
5113.130	C	45	2.70	5.11	1-2	
5065.910	C	50	2.70	5.13	3-3	
5110.751	C	40	2.70	5.11	2-2	
5144.872	C	50	2.70	5.10	1-1	
5108.93	B	12	2.70	5.11	3-2	
5142.263	C	20	2.70	5.10	2-1	
5181.785	C	25	2.70	5.09	1-0	
4745.308	C	30	2.70	5.30	3-4	$a^5P-x^5D^o$ (81)
4808.255	C	25	2.70	5.26	2-3	
4857.34	B	18	2.70	5.24	1-2	
4804.64	B	15	2.70	5.26	3-3	
4855.146	C	15	2.70	5.24	2-2	
4891.97	B	18	2.70	5.22	1-1	
4853.52	P		2.70	5.24	3-2	
4889.73	B	20	2.70	5.22	2-1?	
4909.87	B	8	2.70	5.21	1-0	
4697.062	C	40	2.70	5.32	3-2	$a^5P-z^5S^o$ (82)
•4698.615	C	50	2.70	5.32	2-2	
4700.608	C	40	2.70	5.32	1-2	
4459.34	B	18w	2.70	5.46	3-3	$a^5P-w^5P^o$ (63)
4475.20	P		2.70	5.45	2-2	
4473.782	C	40	2.70	5.45	3-2	
4487.46	B	5w	2.70	5.45	2-1	
4460.789	C	18	2.70	5.46	2-3	
4477.02	B	35w	2.70	5.45	1-2	
4295.757	C	25	2.70	5.57	3-3	$a^5P-v^5P^o$ (64)
4341.48	B	7	2.70	5.54	2-2	
4382.853	C	20	2.70	5.51	1-1	
4340.130	C	18	2.70	5.54	3-2	
4381.112	C	35	2.70	5.51	2-1	
4297.050	C	15	2.70	5.57	2-3	
4343.163	C	18	2.70	5.54	1-2	
4108.400	C	8	2.70	5.70	3-3	$a^5P-y^3P^o$ (85)
4120.813	C	12	2.70	5.89	2-2	
4127.843	C	8	2.70	5.69	1-1	
4119.44	B	3w	2.70	5.69	3-2	
4128.099	C	8	2.70	5.69	2-1	
4109.584	C	8	2.70	5.70	2-3	
4122.162	C	8	2.70	5.89	1-2	
4066.938	C	8	2.70	5.73	3-4	$a^5P-w^5D^o$ (66)
4077.089	C	12	2.70	5.72	2-3	
4081.737	C	5	2.70	5.72	1-2	
4075.92	B	8	2.70	5.72	3-3	
4080.221	C	5	2.70	5.72	2-2	
4090.305	C	6	2.70	5.72	1-1	
3992.845	C	30	2.70	5.79	3-3	$a^5P-u^5P^o$ (87)
3979.798	C	10	2.70	5.80	2-2	
3972.688	C	7	2.70	5.80	1-1	
3978.877	C	18	2.70	5.80	3-2	
3971.255	C	20	2.70	5.80	2-1	
3993.968	C	15	2.70	5.79	2-3	
3981.233	C	15	2.70	5.80	1-2	
3960.783	C	5	2.70	5.81	2-1	$a^5P-z^3S^o$ (68)
3962.19	B	3	2.70	5.81	1-1	

Cr I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3841.277	C	50	2.70	5.91	3-4	$a^5P-v^5D^o$ (69)
3850.042	C	50	2.70	5.90	2-3	
3855.571	C	30	2.70	5.90	1-2	
3848.983	C	40	2.70	5.90	3-3	
3854.220	C	50	2.70	5.90	2-2	
3857.631	C	20	2.70	5.90	1-1	
3853.176	C	12	2.70	5.90	3-2	
3856.281	C	15	2.70	5.90	2-1	
3855.286	C	12	2.70	5.90	1-0	
3819.564	C	40	2.70	5.93	3-4	$a^5P-u^5F^o$ (70)
3826.425	C	40	2.70	5.92	2-3	
3836.070	C	12	2.70	5.92	1-2	
3825.390	C	20	2.70	5.92	3-3	
3834.735	C	15	2.70	5.92	2-2	
3842.03	B	10	2.70	5.91	1-1	
3833.71	B	3	2.70	5.92	3-2	
3840.70	B	4	2.70	5.91	2-1	
3815.433	C	30	2.70	5.93	3-4	$a^5P-u'\,^5F^o$† (71)
3786.22	B	8	2.70	5.96	2-3	
3792.42	B	5	2.70	5.95	1-2	
3755.81	B	7	2.70	5.98	3-2	$a^5P-x^3P^o$† (72)
3756.83	B	2	2.70	5.98	2-2	
3726.85	B	4w	2.70	6.01	1-1	$a^5P-x^3D^o$ (73)
•3574.039	C	15	2.70	6.15	3-3	$a^5P-t^5P^o$ (74)
3602.574	C	12	2.70	6.12	2-2	
3604.95	P		2.70	6.12	1-1	
3601.666	C	40	2.70	6.12	3-2	
•3603.745	C	12	2.70	6.12	2-1	
3574.935	C	10	2.70	6.15	2-3	
•3603.745	C	12	2.70	6.12	1-2	
3572.748	C	12	2.70	6.15	3-2	$a^5P-y^5S^o$ (75)
3573.643	C	18	2.70	6.15	2-2	
3574.605	C	12	2.70	6.15	1-2	
3548.731	C	2	2.70	6.17	2-1	$a^5P-t^5F^o$ (76)
3481.303	C	20	2.70	6.24	3-4	$a^5P-u^5D^o$ (77)
3473.612	C	15	2.70	6.25	2-3	
3471.49	B	7	2.70	6.25	1-2	
3472.764	C	12	2.70	6.25	3-3	
3470.401	C	10	2.70	6.25	2-2	
3470.529	C	7	2.70	6.25	1-1	
3470.72	B	4	2.70	6.25	1-0	
3307.755	C	8	2.70	6.43	3-4	$a^5P-t^5D^o$† (78)
3312.06	B	3	2.70	6.42	2-3	
•3315.19	B	1 1	2.70	6.42	1-2?	
3196.37	P		2.70	6.56	3-4	$a^5P-s^5F^o$ (79)
3201.97	P		2.70	6.55	2-3	
m3201.24	P	Cr+	2.70	6.55	3-3	
3204.55	P		2.70	6.55	3-2	
9900.87	A	15	2.97	4.22	2-2	$a^3P-z^3P^o$ (80)
9826.30	A	4	2.90	4.18	1-1	
10197.05	A	3	2.97	4.18	2-1	
9752.84	A	4	2.90	4.17	1-0	
9362.06	A	10	2.90	4.22	1-2	
9313.55	A	8	2.86	4.18	0-1	
4619.551	C	40	2.97	5.65	2-2	$a^3P-y^3P^o$ (81)
4501.788	C	25	2.90	5.64	1-1	
4622.761	C	25	2.97	5.64	2-1	
4501.112	C	35	2.90	5.64	1-0	
4498.730	C	35	2.90	5.65	1-2	
4432.175	C	40	2.88	5.64	0-1	
•4527.339	C	40	2.97	5.70	2-3	$a^3P-y^3D^o$ (82)
4424.075	C	10	2.90	5.89	1-2	
•4362.95 §	B	7	2.88	5.69	0-1	
4491.858	C	35	2.97	5.72	2-2	$a^3P-w^5D^o$ (83)
4377.549	C	30	2.90	5.72	1-2	
4321.238	C	20	2.86	5.72	0-1	
4387.380	C	10	2.97	5.79	2-3	$a^3P-u^5P^o$ (84)
•4262.133	C	12	2.90	5.80	1-2	
4190.18	B	15	2.88	5.80	0-1	
4118.45	P		2.90	5.90	1-2	$a^3P-v^5D^o$ (85)
3886.94	P		2.97	6.15	2-3	$a^3P-t^3P^o$ (86)
3843.64	B	3	2.97	6.19	2-3	$a^3P-t^5F^o$ (87)
m3819.57	P	Cr	2.97	6.21	2-3	$a^3P-w^3D^o$† (88)
3748.18	B	2	2.90	6.20	1-2	
3710.60	B	4	2.88	6.19	0-1	
•3676.33	B	18	2.97	6.33	2-2	$a^3P-w^3P^o$ (89)
•3604.54	B	3	2.90	6.33	1-1	
•3681.691	C	12	2.97	6.33	2-1?	
3613.669	C	8	2.90	6.32	1-0	
3599.395	C	10	2.90	6.33	1-2	
3559.781	C	10	2.88	6.33	0-1	
3450.00	P		2.97	8.55	2-3	$a^3P-s^5F^o$ (90)
3453.84	P		2.97	8.55	2-2	
3388.88	B	1	2.90	8.54	1-1	
3198.112	C	7	2.97	8.83	2-3	$a^3P-v^3F^o$ (91)
3188.011	C	20w	2.97	6.85	2-3	$a^3P-v^3D^o$ (92)
3159.59	C	20w	2.90	8.81	1-2	
3144.409	C	8w	2.88	6.78	0-1	
3218.70	B	5w	2.97	6.81	2-2	
3179.283	C	7w	2.90	6.78	1-1	
3239.14	B	1	2.97	6.78	2-1	

Cr I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
7462.37	B	100	2.90	4.55	4-3	$z^7P^o-e^7S$ (93)
7400.23	B	150	2.89	4.55	3-3	
7355.94	B	200	2.88	4.55	2-3	
5328.339	C	200w	2.90	5.22	4-5	$z^7P^o-e^7D$ (94)
5297.360	C	60w	2.89	5.22	3-4	
5275.171	C	75w	2.88	5.22	2-3	
5329.12	D	65w	2.90	5.22	4-4	
5297.976	C	40w	2.89	5.22	3-3	
5275.689	C	50w	2.88	5.22	2-2	
5329.719	C	25w	2.90	5.22	4-3	
5298.44	P		2.89	5.22	3-2	
5276.03	D	75w	2.88	5.22	2-1	
4514.531	C	40	2.90	5.63	4-3	$z^7P^o-f^7S$ (95)
4491.678	C	30	2.89	5.63	3-3	
4475.345	C	50	2.88	5.63	2-3	
4261.354	C	25	2.90	5.80	4-5	$z^7P^o-f^7D$ (96)
4272.910	C	12	2.89	5.78	3-4	
4284.725	C	12	2.88	5.76	2-3	
4293.565	C	20	2.90	5.78	4-4	
4299.718	C	20	2.89	5.76	3-3	
4305.453	C	30	2.88	5.74	2-2	
•4320.592	C	30	2.90 2.89	5.76 5.74	4-3 3-2	
4319.641	C	40	2.88	5.73	2-1	
4129.21	E	(20n)	2.90	5.89	4-5	$z^7P^o-g^7D$ (97)
4110.87	E	(8)	2.89	5.89	3-4	
4097.65	E	(5)	2.88	5.89	2-3	
4129.96	P		2.90	5.89	4-4	
4111.36	E	(6)	2.89	5.89	3-3	
4097.96	E	(7)	2.89	5.89	2-2	
4130.47	P		2.90	5.89	4-3	
4111.67	E	(3)	2.89	5.89	3-2	
4098.18	E	(7)	2.88	5.89	2-1	
8224.09	A	8	2.97	4.47	5-4	$a^3H-z^3F^o$ (98)
8261.95	A	8	2.95	4.45	4-3	
4737.153	C	40	2.99	5.60	6-6	$a^3H-z^3H^o$ (99)
4693.949	C	45	2.97	5.60	5-5	
4666.215	D	25	2.95	5.60	4-4	
4725.95	B	7	2.99	5.60	6-5	
4692.97	B	10	2.97	5.60	5-4	
4695.153	C	30	2.97	5.60	5-6	
4667.181	D	30	2.95	5.60	4-5	
4543.74	C	20	2.97	5.69	5-4	$a^3H-y^3F^o$ (100)
•4518.63	B	6	2.95	5.69	4-4	
4495.04	B	4	2.95	5.70	4-3	$a^3H-y^3D^o$ (101)
4442.268	C	30	2.99	5.77	6-5	$a^3H-w^5F^o$ (102)
4410.967	C	25	2.97	5.77	5-4	
4393.534	C	12	2.95	5.76	4-3	
4387.496	C	30	2.99	5.80	6-5	$a^3H-z^3G^o$ (103)
4375.333	C	30	2.97	5.79	5-4	
4363.134	C	12	2.95	5.78	4-3	
4374.158	C	40	2.99	5.81	6-5	$a^3H-y^3G^o$ (104)
4346.833	C	30	2.97	5.81	5-4	
4325.075	C	40	2.95	5.81	4-3	
4255.502	C	25	2.99	5.89	6-7	$a^3H-z^3I^o$ (105)
•4240.705	C	30	2.97	5.88	5-6	
4226.76	P		2.95	5.87	4-5	
4266.82	B	8	2.99	5.88	6-6	
4248.73	B	10	2.97	5.87	5-5	
4175.945	C	15	2.99	5.94	6-7	$a^3H-x^5H^o$ (106)
4185.345	C	10	2.97	5.92	5-6	
4189.96	B	5	2.95	5.90	4-5	
4210.77	B	5	2.99	5.92	6-6	
4237.27	B	1	2.99	5.90	6-5	
4230.29	B	4	2.97	5.89	5-4	
4220.45	B	5	2.95	5.88	4-3	
4167.80	B	3	2.97	5.93	5-4	$a^3H-u'\,^5F^o$ (107)
4146.695	C	6	2.95	5.93	4-4	
4123.387	C	10	2.99	5.98	6-6	$a^3H-y^3H^o$ (108)
4121.817	C	10	2.97	5.96	5-5	
4104.867	C	10	2.95	5.96	4-4	
4146.47	B	4	2.99	5.96	6-5	
4099.016	C	6	2.97	5.98	5-6	
4101.163	D	8	2.95	5.96	4-5	
3510.538	C	15	2.99	6.50	6-7	$a^3H-y^3I^o$ (109)
3494.967	C	15	2.97	6.50	5-6	
3488.453	C	10	2.95	6.49	4-5	
3512.70	B	2n	2.99	6.50	6-6	
•3503.38 §	B	1	2.97	6.49	5-5	
3481.536	C	18	2.99	6.53	6-6	$a^3H-x^3H^o$† (110)
3467.715	C	18	2.97	6.53	5-5	
3443.790	C	10	2.95	6.54	4-4	
3472.906	C	10	2.95	6.51	4-4	a^3H-1° (111)
3346.018	C	12	2.99	6.68	6-5	$a^3H-v^3G^o$† (112)
3346.71	B	10	2.97	8.66	5-4	
3346.78	B	9	2.95	6.64	4-3	
3257.822	C	12	2.99	6.78	6-6	$a^3H-w^3H^o$† (113)
3251.836	C	15	2.97	6.76	5-5	
3245.542	C	12	2.95	6.76	4-4	
3259.975	C	10	2.99	6.77	6-6	$a^3H-v^3H^o$ (114)
3238.087	C	8	2.97	6.78	5-5	
3237.729	C	10	2.95	6.77	4-4	
3253.28	B	4	2.99	6.78	6-5	
3250.58	B	4	2.97	6.77	5-4	
3244.69	B	1	2.97	6.77	5-6	

Cr I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3163.756	C	15	2.99	6.89	6-7	$a^3H-x^3I^o$
3155.149	C	12	2.97	6.88	5-6	(115)
3148.445	C	10	2.95	6.87	4-5	
3169.58	B	3	2.99	6.88	6-6	
3160.61	B	4	2.97	6.87	5-5	
3152.881	D	5	2.99	6.90	6-6	$a^3H-u^3H^o$
3141.891	D	5	2.97	6.90	5-5	(116)
m3039.74	P	Cr	2.99	7.05	6-5	$a^3H-u^3G^o$
3031.486	C	4	2.97	7.04	5-4	(117)
3024.681	C	2	2.95	7.03	4-3	
10486.24	A	20	3.00	4.17	4-4	$b^5D-z^5D^o$
10672.17	A	18	3.00	4.16	3-3	(118)
10816.91	A	8	3.00	4.14	2-2	
10647.66	A	12	3.00	4.16	4-3	
10821.62	A	12	3.00	4.14	3-2	
10957.19	A	12	3.00	4.13	2-1	
11044.64	A	5	3.00	4.12	1-0	
10509.96	A	10	3.00	4.17	3-4	
10667.53	A	15	3.00	4.16	2-3	
10801.37	A	12	3.00	4.14	1-2	
10929.90	A	10	3.00	4.13	0-1	
5712.778	C	100	3.00	5.18	4-4	$b^5D-y^5D^o$
5788.389	C	20	3.00	5.13	3-3	(119)
5843.24	B	25	3.00	5.11	2-2	
•5781.195	C	40	3.00	5.13	4-3	
5844.606	C	40	3.00	5.11	3-2	
5884.452	C	25	3.00	5.10	2-1	
5902.182	C	25	3.00	5.09	1-0	
5719.821	C	40	3.00	5.16	3-4	
5787.036	C	20	3.00	5.13	2-3	
5838.66	B	25	3.00	5.11	1-2	
5876.55	B	25	3.00	5.10	0-1	
•5556.19	B	10	3.00	5.22	4-4	$b^5D-x^7P^o$
5574.41	B	12	3.00	5.21	3-2	(120)
5512.69	B	10	3.00	5.24	3-2	$b^5D-x^5D^o$
•5556.19	B	10	3.00	5.22	2-1	(121)
5004.38	B	35w	3.00	5.46	4-3	$b^5D-w^5P^o$ †
5028.00	B	15w	3.00	5.45	3-2	(122)
4981.30	P		3.00	5.48	3-3	$b^5D-y^5G^o$
4998.55	B	4	3.00	5.47	2-2	(123)
4980.30	P		3.00	5.48	2-3	
4755.137	C	8	3.00	5.59	4-5	$b^5D-x^5F^o$
4764.643	C	20	3.00	5.59	3-4	(124)
4770.670	C	12	3.00	5.59	2-3	
4774.557	C	8	3.00	5.58	1-2	
4759.74	B	8	3.00	5.59	4-4	
4771.57	B	10	3.00	5.59	3-3	
4777.57	B	7	3.00	5.58	2-2	
4779.87	B	3	3.00	5.58	1-1	
m4766.66	P	Cr	3.00	5.59	4-3	
•4776.50	B	2	3.00	5.58	3-2	
4566.602	C	7	3.00	5.70	4-3	$b^5D-y^3D^o$
4584.75	B	12	3.00	5.69	3-2	(125)
4590.69	B	8	3.00	5.69	2-1	
4571.105	C	25	3.00	5.70	3-3	
4583.89	B	15	3.00	5.69	2-2	
4587.86	B	8	3.00	5.69	1-1	
•4570.30	B	6	3.00	5.70	2-3	
4515.440	C	25	3.00	5.73	4-4	$b^5D-w^5D^o$ †
4519.83	B	7	3.00	5.73	3-4	(126)
4530.12	P		3.00	5.72	2-3	
4458.538	C	45	3.00	5.77	4-5	$b^5D-w^5F^o$
4459.738	C	25	3.00	5.77	3-4	(127)
4465.357	C	35	3.00	5.76	2-3	
4464.907	C	25	3.00	5.76	1-2	
4462.774	C	30	3.00	5.76	0-1	
4455.45	B	7	3.00	5.77	4-4	
4466.165	C	25	3.00	5.76	3-3	
4467.561	C	30	3.00	5.78	2-2	
4464.669	C	25	3.00	5.76	1-1	
4468.38	B	7	3.00	5.78	3-2	
4403.372	C	35	3.00	5.80	4-5	$b^5D-z^3G^o$
4423.318	C	12	3.00	5.79	3-4	(128)
4433.968	C	20	3.00	5.78	2-3	
4419.10	B	10	3.00	5.79	4-4	
4434.75	B	10	3.00	5.78	3-3	
m4430.51	P	Cr	3.00	5.78	4-3	
4424.281	C	40	3.00	5.79	4-3	$b^5D-u^5P^o$
4411.093	C	40	3.00	5.80	3-2	(129)
4399.823	C	30	3.00	5.80	2-1	
4428.501	C	35	3.00	5.79	3-3	
4410.304	C	40	3.00	5.80	2-2	
4397.251	C	30	3.00	5.80	1-1	
4427.71	B	10	3.00	5.79	2-3	
4407.72	B	40d?	3.00	5.80	1-2	
4395.417	C	18	3.00	5.80	0-1	
4356.760	C	20	3.00	5.83	4-5	$b^5D-x^5G^o$
4368.252	C	20	3.00	5.83	3-4	(130)
4379.782	C	20	3.00	5.82	2-3	
4392.26	B	10	3.00	5.81	1-2	
4364.14	B	10	3.00	5.83	4-4	
4380.55	B	10	3.00	5.82	3-3	
4394.83	B	8	3.00	5.81	2-2	
4238.957	C	35	3.00	5.91	4-4	$b^5D-v^5D^o$
4252.243	C	10	3.00	5.90	3-3	(131)
4256.620	C	8	3.00	5.90	2-2	
4248.344	C	12	3.00	5.90	4-3	
4257.368	C	12	3.00	5.90	3-2	
4259.15	B	10	3.00	5.90	2-1	
4242.82	B	10	3.00	5.91	3-4	

Cr I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4217.626	C	30	3.00	5.92	4-5	$b^5D-u^5F^o$
4216.365	C	15	3.00	5.93	3-4	(132)
4222.732	C	20	3.00	5.92	2-3	
4230.481	C	25	3.00	5.92	1-2	
4235.98	B	15	3.00	5.91	0-1	
4223.47	B	7	3.00	5.92	3-3	
4232.866	C	10	3.00	5.92	2-2	
4237.710	C	12	3.00	5.91	1-1	
4211.349	C	15	3.00	5.93	3-4	$b^5D-u'\,^5F^o$
4177.17	B	3	3.00	5.95	0-1	(133)
4207.51	B	2	3.00	5.93	4-4	
3945.968	C	10	3.00	6.13	4-5	$b^5D-w^5G^o$
						(134)
3945.495	C	9	3.00	6.13	4-4	$b^5D-x^3F^o$ †
3944.25	B	2	3.00	6.13	3-3	(135)
3943.21	B	3	3.00	6.13	2-2	
3915.843	C	40	3.00	6.15	4-3	$b^5D-t^5P^o$
3952.399	C	15	3.00	6.12	3-2	(138)
3953.163	C	18	3.00	6.12	2-1	
m3919.15	P	Cr	3.00	6.15	3-3	
3951.765	C	8	3.00	6.12	2-2	
3951.097	C	10	3.00	6.12	1-1	
3918.54	P		3.00	6.15	2-3	
•3949.64	B	8	(3.00	6.12	1-2	
			3.00	6.12	0-1	
3917.596	C	15	3.00	6.15	3-2	$b^5D-y^5G^o$
3918.980	C	10	3.00	6.15	2-2	(137)
3914.96	B	4	3.00	6.15	1-2	
3849.365	C	50	3.00	6.20	4-5	$b^5D-t^5F^o$
3858.90	B	15w	3.00	6.20	3-4	(138)
3874.570	D	40w	3.00	6.19	2-3	
3879.222	C	50	3.00	8.18	1-2	
3883.680	C	20	3.00	6.17	0-1	
m3855.65	P	Cr	3.00	6.20	4-4	
3875.14	B	10n	3.00	6.19	3-3	
3881.214	C	40	3.00	6.18	2-2	
3865.084	C	20	3.00	6.17	1-1	
3861.656	C	10	3.00	6.18	3-2	
3804.798	C	50	3.00	6.24	4-4	$b^5D-u^5P^o$
3797.716	C	40	3.00	6.25	3-3	(139)
3793.269	C	30	3.00	6.25	2-2	
3790.228	C	6	3.00	6.25	1-1	
3794.608	C	25	3.00	6.25	4-3	
3793.879	C	30	3.00	6.25	3-2	
3792.137	C	30	3.00	6.25	2-1	
3790.454	C	18	3.00	6.25	1-0	
3807.926	C	15	3.00	6.24	3-4	
3797.126	C	20	3.00	6.25	2-3	
3791.376	C	30	3.00	6.25	1-2	
3788.864	C	20	3.00	6.25	0-1	
m3602.61	P	Cr	3.00	6.42	4-3	$b^5D-t^5D^o$
3807.92	P		3.00	8.42	3-2	(140)
3608.58	P		3.00	8.42	2-1	
3607.25	P		3.00	8.42	1-0	
3460.430	C	25	3.00	8.56	4-5	$b^5D-s^5F^o$ †
3469.590	C	15	3.00	6.56	3-4	(141)
3474.87	B	8	3.00	6.55	2-3	
3477.181	C	7	3.00	6.55	1-2	
3479.14	B	5	3.00	6.54	0-1	
•3467.022	C	12	3.00	8.58	4-4	
3475.38	P		3.00	6.55	3-3	
3478.77	B	7	3.00	6.55	2-2	
3480.28	B	4	3.00	6.54	1-1	
8947.20	A	35	3.09	4.47	5-4	$a^3G-z^3F^o$
8976.88	A	25	3.07	4.45	4-3	(142)
9035.88	A	20	3.07	4.43	3-2	
8835.87	A	10	3.07	4.47	4-4	
8925.75	A	10	3.07	4.45	3-3	
8788.28	P		3.07	4.47	3-4	
4922.267	C	300	3.09	5.60	5-8	$a^3G-z^3H^o$
4887.013	C	150	3.07	5.60	4-5	(143)
4870.798	C	100	3.07	5.60	3-4	
4920.945	C	50	3.09	5.60	5-5	
4885.957	C	50	3.07	5.60	4-4	
4838.857	C	40	3.09	5.84	5-8	$a^3G-y^5H^o$
4814.285	C	35	3.07	5.84	4-5	(144)
4810.733	C	35	3.07	5.63	3-4	
4847.177	C	18	3.09	5.64	5-5	
4825.51	B	10	3.07	5.63	4-4	
4822.08	B	5	3.07	5.83	3-3	
4756.113	C	100	3.09	5.89	5-4	$a^3G-y^3F^o$
4737.350	C	75	3.07	5.88	4-3	(145)
4730.711	C	50	3.07	5.67	3-2	
4724.416	C	35	3.07	5.69	4-4	
4723.03	B	15	3.07	5.68	3-3	
4710.24	B	8	3.07	5.89	3-4	
•4698.615	C	50	3.07	5.70	4-3	$a^3G-y^3D^o$
4698.947	C	20	3.07	5.89	3-2	(146)
4684.605	C	12	3.07	5.70	3-3	
4656.189	C	30	3.07	5.72	4-3	$a^3G-w^5D^o$ †
4846.495	C	15	3.07	5.72	3-2	(147)
4814.15	B	12	3.09	5.77	5-5	$a^3G-w^5F^o$
4581.063	C	10	3.07	5.77	4-4	(148)
4574.45	B	8	3.07	5.78	3-3	
4576.76	B	8	3.07	5.78	3-2	
4555.09	B	(10?)	3.09	5.80	5-5	$a^3G-z^3G^o$
•4542.821	C	35	3.07	5.79	4-4	(149)
4541.513	C	25	3.07	5.78	3-3	

Cr I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4540.719	C	50	3.09	5.81	5-5	$a^3G-y^3G^o$
4511.903	C	60	3.07	5.81	4-4	(150)
4500.295	C	40	3.07	5.81	3-3	
4513.21	B	8+g	3.07	5.81	4-3	
4505.22	B	1	3.09	5.83	5-5	$a^3G-x^5G^o$
4484.68	B	8	3.07	5.82	3-3	(151)
4425.129	C	12	3.09	5.86	5-6	$a^3G-z^3I^o$
4406.26	B	18	3.07	5.87	4-5	(152)
4364.87	B	10	3.09	5.92	5-8	$a^3G-x^5H^o$ ↑
4366.33	B	4	3.07	5.90	4-5	(153)
4271.081	C	15	3.09	5.98	5-8	$a^3G-y^3H^o$
4289.951	C	12	3.07	5.96	4-5	(154)
4262.38	B	6	3.07	5.96	3-4	
4209.758	C	15	3.09	6.02	5-5	$a^3G-x^3G^o$
4224.514	C	18	3.07	5.99	4-4	(155)
•4221.572	C	25	3.07	5.99	3-3	
4249.81	P		3.09	5.99	5-4	
4184.895	C	12	3.07	6.02	4-5	
4213.179	C	10	3.07	5.99	3-4	
4080.56	B	2	3.09	6.12	5-5	$a^3G-w^3G^o$ †
4057.19	B	3	3.07	6.12	4-5	(156)
4060.62	B	8d?	3.07	6.11	3-4	
3586.23	B	4	3.09	6.53	5-6	$a^3G-x^3H^o$
3571.97	P		3.07	6.53	4-5	(157)
3553.968	C	5	3.07	8.54	3-4	
3442.58	B	1	3.09	6.68	5-5	$a^3G-v^3G^o$
3425.96	B	4	3.07	6.68	4-5	(158)
•3349.322§	C	8	3.09	6.76	5-8	$a^3G-w^3H^o$ †
3343.342	C	5	3.07	6.78	4-5	(159)
3343.227	C	5	3.07	6.78	3-4	
3351.598	C	8	3.09	6.77	5-6	$a^3G-v^3H^o$
3328.80	B	4	3.07	6.78	4-5	(160)
3334.925	C	6	3.07	6.77	3-4	
3344.50	B	4	3.09	8.78	5-5	
3313.721	C	3	3.09	6.82	5-4	$a^3G-w^3F^o$
3309.82	B	4	3.07	6.80	4-3	(161)
3298.318	C	7	3.07	6.82	4-4	
3302.86	B	6	3.07	6.80	3-3	
3238.50	B	4	3.09	6.90	5-6	$a^3G-u^3H^o$
3227.23	B	2	3.07	6.90	4-5	(162)
3119.246	C	5	3.09	7.05	5-5	$a^3G-u^3G^o$
3110.860	C	5	3.07	7.04	4-4	(163)
3109.336	C	8	3.07	7.03	3-3	
3115.51	B	1	3.07	7.03	4-3	
3105.57	B	2	3.07	7.05	4-5	
3104.70	B	2	3.07	7.04	3-4	
•3060.83	B	2	3.09	7.12	5-5	$a^3G-t^3G^o$ †
3058.17	B	3	3.07	7.11	4-4	(164)
3047.455	C	4	3.07	7.12	4-5	
3052.229	C	8	3.07	7.11	3-4	
9059.74	A	5	3.11	4.47	4-4	$a^3F-z^3F^o$
9148.45	A	6	3.10	4.45	3-3	(165)
9206.29	A	25	3.11	4.45	4-3	
9283.97	A	20	3.10	4.43	3-2	
4954.811	C	80	3.11	5.80	4-5	$a^3F-z^3H^o$
4936.334	C	150	3.10	5.80	3-4	(166)
4953.714	D	25	3.11	5.60	4-4	
4860.06	B	25	3.11	5.84	4-5	$a^3F-y^5H^o$
4874.851	C	20	3.10	5.63	3-4	(187)
4787.74	B	5	3.11	5.89	4-4	$a^3F-y^3F^o$
4764.70	P		3.10	5.68	3-3	(188)
4754.743	C	20	3.08	5.67	2-2	
4801.030	C	75	3.11	5.68	4-3	
4792.513	C	75	3.10	5.67	3-2	
4747.00	B	4	3.08	5.88	2-3	
4781.242	C	10	3.11	5.70	4-3	$a^3F-y^3D^o$
4759.907	C	10	3.10	5.69	3-2	(189)
4729.723	C	35	3.08	5.89	2-1?	
4717.888	C	10	3.11	5.72	4-3	$a^3F-w^5D^o$
4706.102	C	25	3.10	5.72	3-2	(170)
4660.870	C	35	3.08	5.72	2-1	
4701.92	B	5	3.10	5.72	3-3	
4689.87	B	10	3.06	5.72	2-2	
4640.55	B	4	3.11	5.77	4-4	$a^3F-w^5F^o$
4632.160	C	35	3.10	5.78	3-3	(171)
4599.25	B	1	3.08	5.78	2-2	
4834.59	B	5	3.10	5.78	3-2	
4599.00	B	8	3.06	5.78	2-1	
4625.30	B	3	3.10	5.77	3-4	
4598.90	B	3	3.08	5.78	2-3	
4584.095	C	20	3.11	5.80	4-5	$a^3F-z^3G^o$
4588.136	C	20	3.10	5.79	3-4	(172)
4563.857	C	25	3.08	5.78	2-3	
4601.15	B	20	3.11	5.79	4-4	
4596.441	C	20	3.10	5.78	3-3	
4569.530	C	20	3.11	5.61	4-5	$a^3F-y^3G^o$
4554.630	C	25	3.10	5.81	3-4	(173)
4522.00	B	12	3.08	5.81	2-3	
4589.844	C	30	3.11	5.81	4-4	
4556.189	C	40	3.10	5.81	3-3	
4570.98	B	20	3.11	5.81	4-3	

Cr I continued

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
4527.471	C	30	3.08	5.80	2-1?	$a^3F-u^5P^\circ$ (174)
4513.89	B	3	3.08	5.81	2-1	$a^3F-z^3S^\circ$ (175)
4332.569	C	15	3.11	5.98	4-3	$a^3F-u'\,5F^\circ$
4325.65	B	8	3.10	5.95	3-2	(178)
4298.30	B	8	3.08	5.95	2-1	
4358.68	B	10	3.10	5.93	3-4	
4321.617	C	8	3.11	5.98	4-5	$a^3F-y^3H^\circ$
4312.489	C	5	3.10	5.96	3-4	(177)
4234.515	C	12	3.11	8.02	4-5	$a^3F-x^3G^\circ$
•4262.133	C	12	3.10	5.99	3-4	(178)
•4240.705	C	30	3.08	5.99	2-3	
4142.47	B	5	3.11	6.09	4-3	$a^3F-x^3D^\circ$
•4179.257	C	30	3.10	6.05	3-2	(179)
4103.85 †	B	4	3.11	8.12	4-5	$a^3F-w^3G^\circ$ †
4108.05	B	4	3.10	8.11	3-4	(180)
4092.174	C	6	3.08	6.09	2-3	
3374.93	B	4	3.11	6.76	4-5	$a^3F-w^3H^\circ$
3373.96	B	2	3.10	6.78	3-4	(181)
3382.07	B	3	3.11	6.76	4-4	
3329.053	C	8	3.11	6.82	4-4	$a^3F-w^3F^\circ$
3332.879	C	7	3.10	8.80	3-3	(182)
3328.590	C	10	3.08	6.79	2-2	
3321.19	B	2	3.10	6.82	3-4	
m3314.56	P	Cr†	3.08	6.80	2-3	
3132.820	C	8	3.11	7.05	4-5	$a^3F-u^3G^\circ$
3131.211	C	8	3.10	7.04	3-4	(183)
3119.706	C	5	3.08	7.03	2-3	
3138.203	C	4	3.11	7.04	4-4	
3135.91	B	3	3.10	7.03	3-3	
3073.679	C	10	3.11	7.12	4-5	$a^3F-t^3G^\circ$
3077.831	C	10	3.10	7.11	3-4	(184)
3065.087	C	10	3.08	7.11	2-3	
3084.59	B	4	3.11	7.11	4-4	
3080.72	B	5	3.10	7.11	3-3	
6062.75	B	50	3.18	5.22	6-5	$z^7F^\circ-e^7D$
5982.84	B	40	3.15	5.22	5-4	(185)
5916.73	B	30	3.13	5.22	4-3	
5863.96	B	25	3.11	5.22	3-2	
5981.96	B	25	3.15	5.22	5-5	
5915.93	B	25	3.13	5.22	4-4	
5796.00	P		3.09	5.22	1-1	
5797.53	P		3.09	5.22	1-2	
4718.429	C	75	3.18	5.80	6-5	$z^7F^\circ-f^7D$
4708.040	C	60	3.15	5.78	5-4	(186)
4696.458	C	60	3.13	5.78	4-3	
4689.374	C	65	3.11	5.74	3-2	
4680.49	B	50	3.10	5.73	2-1	
4669.336	C	50	3.15	5.60	5-5	
4666.512	C	55	3.13	5.78	4-4	
4664.798	C	60	3.11	5.76	3-3	
4663.832	C	55	3.10	5.74	2-2	
4663.328	C	40	3.09	5.73	1-1	
4628.473	C	10	3.13	5.80	4-5	
4633.286	C	30	3.11	5.78	3-4	
4639.536	D	35	3.10	5.76	2-3	
4646.808	C	20	3.09	5.74	1-2	
4654.736	C	35	3.08	5.73	0-1	
9009.95	A	100	3.31	4.68	3-2	$z^5P^\circ-e^5S$
9017.10	A	75	3.31	4.88	2-2	(187)
9021.69	A	50	3.31	4.68	1-2	
5791.005	C	100	3.31	5.44	3-4	$z^5P^\circ-e^5D$
5787.99	C	75	3.31	5.44	2-3	(188)
5785.820	C	50	3.31	5.44	1-2	
5785.002	C	50	3.31	5.44	3-3	
5783.932	C	50	3.31	5.44	2-2	
5783.112	C	50	3.31	5.44	1-1	
5780.97	B	10	3.31	5.44	3-2	
•5781.195	C	40	3.31	5.44	2-1	
5781.808	C	40	3.31	5.44	1-0	
5212.27	B	18w	3.31	5.87	3-2	$z^5P^\circ-f^5S$
5214.64	B	15w	3.31	5.67	2-2	(189)
5216.17	B	12w	3.31	5.67	1-2	
4536.55	B	4	3.31	6.03	3-4	$z^5P^\circ-f^5D$
•4572.18	B	7w	3.31	6.01	2-3	(190)
•4595.05	B	5w	3.31	5.99	1-2	
•4570.30	B	6	3.31	6.01	3-3	
4593.84	B	8v	3.31	5.99	2-2	
4604.58	B	5w	3.31	5.99	2-1	
5400.608	C	50	3.36	5.65	2-2	$b^3P-y^3P^\circ$
•5391.350	C	35	3.35	5.84	1-1	(191)
5405.004	C	35	3.38	5.64	2-1	
5390.394	C	40	3.35	5.64	1-0	
5388.978	C	75	3.35	5.65	1-2	
5387.573	C	35	3.35	5.84	0-1	
m5375.11	P	Cr	3.38	5.70	2-3	$b^3P-y^3D^\circ$
5280.289	C	30	3.35	5.89	1-2	(192)
5285.83	B	15	3.35	5.89	0-1	
5293.383	C	15	3.38	5.89	2-2	
5289.27	B	10	3.35	5.89	1-1	
5221.753	C	50	3.38	5.72	2-3	$b^3P-w^5D^\circ$
5214.127	C	30	3.35	5.72	1-2	(193)
•5224.541	C	45	3.35	5.72	0-1	
5228.891	C	50	3.38	5.72	2-2	
5228.082	C	50	3.35	5.72	1-1	
5240.94	B	20	3.38	5.72	2-1	

Cr I continued

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
4781.73	B	5	3.38	5.95	2-2	$b^3P-u'\,5F^\circ$ †
4752.87	B	10	3.35	5.95	1-1	(194)
4707.754	C	15	3.36	5.98	2-2	$b^3P-x^3P^\circ$
4725.87	B	5	3.35	5.97	1-1	(195)
4736.13	B	5	3.38	5.97	2-1	
4749.25	B	1w	3.35	5.95	1-0	
4697.395	C	15	3.35	5.98	1-2	
4722.741	D	10	3.35	5.97	0-1	
4528.108	C	40	3.38	8.09	2-3	$b^3P-x^3D^\circ$
4575.121	C	25	3.35	6.05	1-2	(196)
4584.934	C	15	3.38	8.05	2-2	
4492.312	C	40	3.36	6.11	2-1	$b^3P-y^3S^\circ$
4482.878	C	40	3.35	6.11	1-1	(197)
4480.263	C	30	3.35	8.11	0-1	
4338.799	C	15	3.38	8.21	2-3	$b^3P-w^3D^\circ$
4345.085	C	15	3.35	8.20	1-2	(198)
4357.525	C	15	3.35	8.19	0-1	
4353.983	D	15	3.36	6.20	2-2	
4359.992	C	20	3.35	6.19	1-1	
4368.89	B	8	3.36	6.19	2-1	
4266.44	B	2w	3.36	6.25	2-2	$b^3P-u^5D^\circ$ (199)
3153.54	B	5	3.38	7.27	2-2	$b^3P-t^3P^\circ$
3184.08	B	1	3.35	7.28	1-1	(200)
5224.941	C		3.44	5.80	5-5	$z^7D^\circ-f^7D$
5225.032	C	150•	3.41	5.78	4-4	(201)
5224.082	C	40	3.39	5.78	3-3	
5220.912	C	40	3.37	5.73	1-1	
5273.439	C	25	3.44	5.78	5-4	
5265.160	C	60	3.41	5.76	4-3	
5254.918	C	100	3.39	5.74	3-2	
5243.395	C	75	3.38	5.73	2-1	
5177.430	C	75	3.41	5.80	4-5	
5184.590	C	100	3.39	5.78	3-4	
5192.000	C	100	3.38	5.78	2-3	
5200.188	C	50	3.37	5.74	1-2	
5027.88	P		3.44	5.89	5-5	$z^7D^\circ-g^7D$
4948.84	P		3.39	5.89	3-3	(202)
4900.83	P		3.37	5.89	1-1	
4983.63	P		3.41	5.89	4-5	
4947.91	P		3.39	5.89	3-4	
4900.50	P		3.37	5.89	1-2	
5702.307	C	60	3.43	5.60	5-8	$b^3G-z^3H^\circ$
5684.040	C	40	3.42	5.80	4-5	(203)
5628.645	C	50	3.41	5.60	3-4	
•5700.514	C	40	3.43	5.60	5-5	
5480.502	C	45	3.43	5.69	5-4	$b^3G-y^3F^\circ$
5463.974	C	40	3.42	5.68	4-3	(204)
5442.413	C	35	3.41	5.67	3-2	
5448.76	B	25	3.42	5.69	4-4	
5432.347	C	25	3.41	5.68	3-3	
5292.865	C	10	3.43	5.77	5-5	$b^3G-w^5F^\circ$
5257.07	B	10	3.42	5.77	4-4	(205)
5236.83	B	10	3.41	5.76	3-3	
5215.29	B	20	3.43	5.80	5-5	$b^3G-z^3G^\circ$
5208.52	P		3.42	5.79	4-4	(206)
5193.486	C	35	3.41	5.78	3-3	
•5237.35	B	2	3.43	5.79	5-4	
5222.39	B	10	3.42	5.78	4-3	
•5177.83	B	10	3.41	5.79	3-4	
5198.443	C	100•	3.43	5.81	5-5	$b^3G-y^3G^\circ$
5166.227	C	150	3.42	5.81	4-4	(207)
5139.654	C	100	3.41	5.81	3-3	
5196.57	B	100•	3.43	5.81	5-4	
5167.96	B	30	3.42	5.81	4-3	
5137.94	B	12	3.41	5.81	3-4	
4046.29	B	40	3.43	5.98	5-6	$b^3G-y^3H^\circ$
4851.465	C	25	3.42	5.96	4-5	(208)
4831.627	C	15	3.41	5.98	3-4	
4826.81	B	8	3.42	6.09	4-3	$b^3G-x^3D^\circ$ (209)
4602.51	B	7	3.43	6.12	5-5	$b^3G-w^3G^\circ$ †
4596.38	B	6	3.42	6.11	4-4	(210)
4585.72	B	3	3.43	8.13	5-5	$b^3G-w^5G^\circ$
4560.28	B	1	3.41	6.11	3-3	(211)
•4595.05	B	5w	3.43	6.12	5-4	
4585.088	C	18	3.43	6.13	5-4	$b^3G-x^3F^\circ$
4555.30	B	15	3.42	6.13	4-3?	(212)
4532.75	B	10	3.41	6.13	3-2	
3983.237	C	7	3.43	6.53	5-6	$b^3G-x^3H^\circ$ †
3970.07	B	7	3.42	6.53	4-5	(213)
•3941.15	B	3	3.41	6.54	3-4	
3808.829	C	10	3.43	6.68	5-5	$b^3G-v^3G^\circ$ †
3812.250	C	12	3.42	6.88	4-4	(214)
3814.822	C	12	3.41	6.64	3-3	
3736.45	B	4	3.43	6.74	5-4	$b^3G-q^5F^\circ$ † (215)
3693.09	B	5	3.43	6.78	5-6	$b^3G-w^3H^\circ$ †
3689.63	B	6	3.42	6.76	4-5	(218)
3863.87	B	4n	3.41	8.78	3-4	
3695.86	B	5	3.43	8.77	5-6	$b^3G-v^3H^\circ$
3871.94	B	1	3.42	6.78	4-5	(217)
3673.59	B	2	3.41	6.77	3-4	
3345.14	B	5	3.43	7.12	5-5	$b^3G-t^3G^\circ$ †
3345.36	B	4	3.42	7.11	4-4	(218)

Cr I continued

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
3293.81	B	5	3.43	7.18	5-4	$b^3G-u^3F^\circ$
3277.88	B	4	3.42	7.19	4-3	(219)
3270.70	B	3	3.41	7.18	3-2	
3229.204	C	10	3.43	7.26	5-6	$b^3G-t^3H^\circ$ †
3219.618	D	8	3.42	7.25	4-5	(220)
3211.309	C	8	3.41	7.25	3-4	
11157.03	A	25	3.45	4.55	4-3	$y^7P^\circ-e^7S$
11015.63	A	30	3.43	4.55	3-3	(221)
11905.83	A	25	3.42	4.55	2-3	
8978.46	B	300	3.45	5.22	4-5	$y^7P^\circ-e^7D$
8924.13	C	200	3.43	5.22	3-4	(222)
6881.64	B	100	3.42	5.22	2-3	
6979.82	C	150	3.45	5.22	4-4	
6925.24	D	150	3.43	5.22	3-3	
6882.48	D	75	3.42	5.22	2-2	
6980.91	B	50	3.45	5.22	4-3	
6926.04	B	100	3.43	5.22	3-2	
6883.04	D	150	3.42	5.22	2-1	
5609.19	B	35	3.43	5.63	3-3	$y^7P^\circ-f^7S$
5580.51	B	25	3.42	5.63	2-3	(223)
5508.88	P		3.43	5.67	3-2	$y^7P^\circ-f^5S$ (224)
5255.132	C	125	3.45	5.80	4-5	$y^7P^\circ-f^7D$
5273.010	C	50	3.43	5.78	3-4	(225)
5287.188	C	40	3.42	5.76	2-3	
5304.211	C	40	3.45	5.78	4-4	
5312.878	C	50	3.43	5.76	3-3	
5318.775	C	40	3.42	5.74	2-2	
m5345.81	P	Cr	3.45	5.76	4-3	
5344.761	C	20	3.43	5.74	3-2	
5340.437	C	35	3.42	5.73	2-1	
9730.32	A	25	3.54	4.80	3-3	$a^3D-z^3D^\circ$ †
9949.08	A	20	3.54	4.78	2-2	(226)
10080.32	A	15	3.54	4.76	1-1	
5738.554	C	30	3.54	5.69	3-4	$a^3D-y^3F^\circ$
5772.676	C	25	3.54	5.68	2-3	(227)
m5783.15	P	Cr	3.54	5.67	1-2	
•5700.514	C	40	3.54	5.70	3-3	$a^3D-y^3D^\circ$
5736.632	C	15	3.54	5.69	2-2	(228)
m5748.32	P	Cr	3.54	5.69	1-1	
4835.68	B	10	3.54	6.09	3-3	$a^3D-x^3D^\circ$ (229)
4775.141	C	10	3.54	6.12	3-4?	$a^3D-w^5G^\circ$ †
4797.69	B	15	3.54	6.11	2-3	(230)
4809.32	B	10	3.54	6.11	1-2	
4784.294	C	50	3.54	6.13	3-4	$a^3D-x^3F^\circ$
4767.860	C	30	3.54	6.13	2-3	(231)
4766.83	B	35	3.54	6.13	1-2	
4757.591	C	18	3.54	6.13	3-3	
4767.260	D	25	3.54	8.13	2-2	
4721.14	B	8w	3.54	6.15	3-3	$a^3D-t^5P^\circ$ (232)
4622.491	C	35	3.54	6.21	3-3	$a^3D-w^3D^\circ$
m4649.54	P	Cr	3.54	6.20	2-2	(233)
4665.902	C	35	3.54	6.19	1-1	
4413.866	C	40	3.54	6.33	3-2	$a^3D-w^3P^\circ$
4430.486	C	30	3.54	6.33	2-1	(234)
4443.707	C	30	3.54	6.32	1-0	
4422.697	C	10	3.54	6.33	2-2	
4429.938	C	20	3.54	6.33	1-1	
3520.55	B	0	3.54	7.04	3-4	$a^3D-u^3G^\circ$ (235)
3385.31	B	8	3.54	7.18	3-4	$a^3D-u^3F^\circ$
3386.50	B	5	3.54	7.19	2-3	(236)
3390.77	B	5	3.54	7.18	1-2	
3391.11	B	1	3.54	7.18	2-2	
5261.754	C	50	3.68	6.03	3-4	$y^5P^\circ-f^5D$ †
5240.468	C	60	3.65	6.01	2-3	(237)
5307.281	C	30	3.68	6.01	3-3	
3902.108	C	10	3.65	6.82	2-3	$y^5P^\circ-e^3D$ (238)
5698.330	C	100	3.86	6.03	5-4	$z^5F^\circ-f^5D$
5694.730	C	75	3.84	6.01	4-3	(239)
5682.483	C	75	3.82	5.99	3-2	
5642.362	C	50	3.84	6.03	4-4	
5649.371	C	50	3.82	6.01	3-3	
5648.18	F	(1)	3.81	5.99	2-2	
5597.87	B	18	3.82	6.03	3-4	
5615.54	P		3.81	6.01	2-3	
4275.973	C	15	3.86	6.75	5-5	$z^5F^\circ-e^5F$ †
4260.19	B	5w	3.84	6.74	4-4	(240)
4291.964	C	15	3.86	6.74	5-4	
•4269.02	B	5w	3.82	6.71	3-2	
4244.33	B	3w	3.84	6.75	4-5	
4148.52	B	2	3.84	6.82	4-3	$z^5F^\circ-e^3D$ †
4163.94	B	2	3.82	6.79	3-2	(241)
4174.795	C	10	3.81	6.77	2-1?	
6029.28	B	18	3.83	5.88	6-6	$a^3I-z^3I^\circ$
6047.665	D	18	3.83	5.87	5-5	(242)
5746.432	C	25	3.83	5.98	7-6	$a^3I-y^3H^\circ$
5791.781	C	20	3.83	5.98	6-5	(243)
5801.14	B	30	3.83	5.96	5-4	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Cr I continued						
•4621.963	C	45•	3.83	6.50	7-7	$a^3I-y^3I^\circ$
4625.925	C	20	3.83	6.50	6-6	(244)
4643.011	C	10	3.83	6.49	5-5	
4625.65	B	1	3.83	6.50	7-6	
4640.67	B	1	3.83	6.49	6-5	
4614.533	C	12	3.83	6.51	5-4	a^3I-i° (245)
4571.83	B	12	3.83	6.53	7-6	$a^3I-x^3H^\circ$
4578.334	C	12	3.83	6.53	6-5	(246)
4563.245	C	15	3.83	6.54	5-4	
•4572.16	B	7w	3.83	6.53	6-6	
4579.59	B	2	3.83	6.53	5-5	
4573.38	B	1gn?	3.83	6.53	5-6	
4263.141	C	35	3.83	6.73	7-8	$a^3I-z^3K^\circ$ †
4280.405	C	25	3.83	6.72	6-7	(247)
4297.738	C	30	3.83	6.71	5-6	
4193.662	C	40	3.83	6.78	7-6	$a^3I-w^3H^\circ$
4209.368	C	20	3.83	6.76	6-5	(248)
•4221.572	C	25	3.83	6.76	5-4	
4193.89	B	3	3.83	6.78	6-6	
4194.951	C	20	3.83	6.78	5-6	
4197.234	C	20	3.83	6.77	7-6	$a^3I-v^3H^\circ$
•4186.359	C	15	3.83	6.78	6-5	(249)
4208.357	C	15	3.83	6.77	5-4	
4197.47	B	2	3.83	6.77	6-6	
4198.525	C	35	3.83	6.77	5-6	
4179.05	B	7	3.83	6.79	7-7	$a^3I-z^1K^\circ$
•4179.257	C	30	3.83	6.79	6-7	(250)
4039.100	C	20	3.83	6.89	7-7	$a^3I-x^3I^\circ$
4048.780	C	20	3.83	6.88	6-6	(251)
4058.772	C	20	3.83	6.87	5-5	
4048.56	P		3.83	6.88	7-6	
4057.81	B	8	3.83	6.87	6-5	
4039.30	B	5	3.83	6.89	6-7	
4049.783	C	5	3.83	6.88	5-6	
m3605.52	P	Cr	3.83	7.26	7-6	$a^3I-t^3H^\circ$
3608.401	C	10	3.83	7.25	6-5	(252)
3613.609	C	4	3.83	7.25	5-4	
3458.090	C	10	3.83	7.40	7-7	$a^3I-w^3I^\circ$
•3467.022	C	12	3.83	7.39	6-6	(253)
3453.23	B	10	3.83	7.41	5-5	
3376.397	C	10	3.83	7.49	7-7	$a^3I-v^3I^\circ$
3391.372	C	10	3.83	7.47	6-8	(254)
3403.59	B	8	3.83	7.46	5-5	
3316.503	C	5	3.83	7.55	7-6	$a^3I-s^3H^\circ$
3336.97	B	4	3.83	7.53	6-5	(255)
3353.026	C	6	3.83	7.51	5-4	
6643.023	C	15	3.83	5.69	3-4	$b^3D-y^3F^\circ$
6677.24	B	10	3.83	5.68	2-3	(256)
6701.64	B	10	3.83	5.67	1-2	
5729.203	C	20	3.83	5.98	3-2	$b^3D-x^3P^\circ$
5777.77	B	25	3.83	5.97	2-1	(257)
5371.48	B	50	3.83	6.13	3-4	$b^3D-x^3F^\circ$
5368.546	C	35	3.83	6.13	2-3	(258)
•5373.715	C	30	3.83	6.13	1-2	
5362.98	B	25	3.83	6.13	3-3	
5367.78	B	10	3.83	6.13	2-2	
4930.183	C	30	3.83	6.33	3-2	$b^3D-w^3P^\circ$
4944.59	B	22	3.83	6.33	2-1	(259)
4966.80	B	25	3.83	6.32	1-0	
4934.89	B	15	3.83	6.33	2-2	
4949.58	B	12	3.83	6.33	1-1	
4146.20	B	6	3.83	6.80	3-4	$b^3D-v^3F^\circ$
4109.98	B	1	3.83	6.83	2-3	(260)
4093.06	B	4	3.83	6.85	1-2	
4106.71	B	0	3.83	6.83	3-3	
4089.63	B	2	3.83	6.85	2-2	
4131.360	C	10	3.83	6.82	3-4	$b^3D-w^3F^\circ$
4152.775	C	10	3.83	6.80	2-3	(281)
4175.227	C	8	3.83	8.79	1-2	
4149.45	B	5	3.83	6.80	3-3	
4171.675	C	12	3.83	8.79	2-2	
4168.31	B	2	3.83	6.79	3-2	
3907.778	C	7	3.83	6.99	3-2	$b^3D-v^3P^\circ$
3890.82	B	4	3.83	7.00	2-1	(262)
3510.40	B	5	3.83	7.34	3-4	$b^3D-t^3F^\circ$
3521.53	B	3	3.83	7.34	2-3	(263)
3531.44	B	4	3.83	7.33	1-2	
7185.50	B	20	3.88	5.59	5-5	$a^5F-x^5F^\circ$ †
7188.06	B	18	3.87	5.59	4-4	(264)
7198.83	B	18	3.87	5.59	3-3	
7207.85	B	10	3.87	5.58	2-2	
7218.57	B	9	3.87	5.58	1-1	
8529.197	D	18	3.88	5.77	5-5	$a^5F-w^5F^\circ$
8518.028	D	12	3.87	5.77	4-4	(265)
m4836.18	P	Cr+	3.88	6.43	5-4	$a^5F-t^5D^\circ$
4840.22	F	(1)	3.87	6.42	4-3	(266)
4841.52	P		3.87	6.42	3-2	
4841.73	B	12	3.87	6.42	1-0?	
4832.54	P		3.87	6.43	4-4	
4465.15	B	20	3.88	6.84	5-4	$a^5F-s^5D^\circ$ †
4490.58	B	8w	3.87	6.82	4-3	(267)
4507.95	B	4N	3.87	6.61	3-2	
Cr I continued						
3989.986	C	15	3.88	6.97	5-8	$a^5F-v^5G^\circ$ †
4001.444	C	25	3.87	6.96	4-5	(268)
•4012.49 §	B	20	3.87	6.95	3-4	
4022.263	C	18	3.87	6.94	2-3	
4031.130	D	7	3.87	6.93	1-2	
4003.921	D	7	3.88	6.96	5-5	
4014.668	C	10	3.87	6.95	4-4	
4023.739	C	8	3.87	6.94	3-3	
3716.531	C	10w	3.88	7.20	5-4	$a^5F-r^5D^\circ$ †
3714.39	B	4w	3.87	7.20	4-4	(269)
3712.50	B	1w	3.87	7.20	3-4	
4481.44	B	18	3.96	6.72	6-7	$a^1I-z^3K^\circ$ † (270)
4268.798	C	10	3.96	6.85	6-6	$a^1I-z^1I^\circ$ (271)
4204.471	C	12	3.96	6.90	6-5	$a^1I-u^3H^\circ$ (272)
4192.103	C	15	3.98	6.91	6-5	$a^1I-z^1H^\circ$ (273)
3527.08	B	3N	3.96	7.46	6-6	$a^1I-y^1I^\circ$ (274)
•4542.621	C	35	4.09	6.80	4-4	$b^3F-v^3F^\circ$
4495.275	C	12	4.09	6.83	4-3	(275)
4531.82	B	2	4.08	6.80	3-4	
4524.841	C	15	4.09	6.83	4-4	$b^3F-w^3F^\circ$ †
•4535.731	C	60	4.08	6.80	3-3	(276)
4553.949	C	18	4.08	8.79	2-2	
•4531.141	C	25	4.08	6.81	2-2	$b^3F-v^3D^\circ$
4561.54	B	10w	4.08	6.78	2-1	(277)
4169.838	C	1	4.09	7.05	4-5	$b^3F-u^3G^\circ$ †
4170.202	C	15	4.08	7.04	3-4	(278)
4174.941	C	8	4.08	7.03	2-3	
4065.716	C	12	4.09	7.12	4-5	$b^3F-t^3G^\circ$
4076.061	C	10	4.08	7.11	3-4	(279)
4077.677	C	10	4.08	7.11	2-3	
3990.16	B	8	4.09	7.18	4-4	$b^3F-u^3F^\circ$ †
3978.30	B	5	4.08	7.19	3-3	(280)
3979.324	C	7	4.08	7.18	2-2	
3564.30	B	7	4.09	7.55	4-5	$b^3F-s^3G^\circ$
3562.48	B	4	4.08	7.55	3-4	(281)
•3565.55	B	2	4.08	7.54	2-3	
3569.14	B	5	4.09	7.55	4-4	
6661.076	C	50	4.17	6.03	4-4	$z^5D^\circ-f^5D$
6669.257	C	40	4.18	6.01	3-3	(282)
6657.54	B	20w	4.14	5.99	2-2	
6734.16	B	30	4.17	6.01	4-3	
6715.38	B	35	4.16	5.99	3-2	
6880.19	B	25w	4.14	5.99	2-1	
6597.556	C	40	4.16	6.03	3-4	
6613.17	B	40	4.14	6.01	2-3	
4796.169	O	40w	4.17	6.75	4-5	$z^5D^\circ-e^5F$ †
4783.06	B	15w	4.16	6.74	3-4	(283)
4775.53	B	10w	4.14	6.73	2-3	
•4789.80	B	4w	4.13 4.12	6.71 6.70	1-2 0-1	
4816.41	B	10w	4.17	6.74	4-4	
4805.24	B	15w	4.16	6.73	3-3	
4796.84	B	12w	4.14	6.71	2-2	
3566.10	B	25n	4.17	7.64	4-3	$z^5D^\circ-f^5P$
3568.38	B	3w	4.16	7.62	3-2	(284)
5385.38	B	7	4.17	6.50	6-7	$b^1I-y^3I^\circ$
5309.47	B	8	4.17	6.49	6-5	(285)
4595.590	C	45	4.17	6.85	6-8	$b^1I-z^1I^\circ$ (286)
4514.373	C	20	4.17	6.90	6-6	$b^1I-u^3H^\circ$
•4521.141	C	25	4.17	6.90	6-5	(287)
4508.853	C	30	4.17	6.91	6-5	$b^1I-z^1H^\circ$ (288)
3747.284	C	7	4.17	7.46	6-6	$b^1I-y^1I^\circ$ (289)
4757.328	C	15	4.22	6.82	2-3	$z^3P^\circ-e^3D$ †
4743.112	C	12w	4.18	6.79	1-2	(290)
•4751.04	B	5w	4.17	6.77	0-1	
8167.94	A	4	4.19	5.70	3-3	$c^3D-y^3D^\circ$ (291)
4699.589	C	25	4.19	6.82	3-4	$c^3D-w^3F^\circ$ †
4723.18	B	8	4.19	6.80	2-3	(292)
4741.089	D	12	4.19	6.79	1-2	
4488.051	C	30	4.19	6.94	3-3	$c^3D-v^5G^\circ$ (293)
4232.222	C	15	4.19	7.11	2-3	$c^3D-t^3G^\circ$ (294)
4000.59	B	4	4.19	7.27	3-2	$c^3D-t^3P^\circ$ (295)
8707.95	A	12	4.37	5.79	4-3	$c^5D-u^5P^\circ$ †
8718.70	A	8	4.38	5.80	3-2	(296)
8732.17	A	3	4.39	5.80	2-1	
8788.98	A	4	4.38	5.79	3-3	
8773.56	A	5	4.39	5.80	2-2	
8297.58	A	3	4.39	5.88	2-3	$c^5D-x^5H^\circ$ (297)
Cr I continued						
8183.22	A	35	4.37	5.88	4-5	$c^5D-v^5F^\circ$
8235.89	A	30	4.38	5.88	3-4	(298)
8287.38	A	25	4.39	5.88	2-3	
8322.06	A	20	4.40	5.88	1-2	
8338.83	A	5	4.40	5.88	0-1	
•8166.66	A	7	4.37	5.88	4-4	
8238.29	A	12	4.38	5.88	3-3	
8290.62	A	10	4.39	5.88	2-2	
8323.44	A	5	4.40	5.88	1-1	
8018.04	A	3	4.37	5.91	4-4	$c^5D-v^5D^\circ$ †
8119.13	A	3	4.38	5.90	3-3	(299)
8185.69	A	5	4.39	5.90	2-2	
8225.67	A	3	4.40	5.90	1-1	
8084.98	A	10	4.38	5.91	3-4	
•8166.68	A	7	4.39	5.90	2-3	
8216.28	A	5	4.40	5.90	1-2	
7942.02	A	25	4.37	5.92	4-5	$c^5D-u^5F^\circ$ †
7989.38	A	12	4.38	5.93	3-4	(300)
8061.27	A	10	4.39	5.92	2-3	
8128.28	A	8	4.40	5.92	1-2	
8169.80	A	5	4.40	5.91	0-1	
6729.72	B	40	4.37	6.20	4-5	$c^5D-t^5F^\circ$ (301)
•5373.715	C	30	4.44	6.73	6-5	$b^3H-r^5F^\circ$
•5391.350	C	35	4.43	6.72	5-4	(302)
4592.54	B	15	4.44	7.12	6-5	$b^3H-t^3G^\circ$ †
4606.375	C	15	4.43	7.11	5-4	(303)
4609.894	C	8	4.43	7.11	4-3	
4376.798	C	25	4.44	7.26	6-6	$b^3H-t^3H^\circ$ †
m4371.28	P	Cr	4.43	7.25	5-5	(304)
4373.656	C	15	4.43	7.25	4-4	
4161.415	C	15	4.44	7.40	6-7	$b^3H-w^3I^\circ$
4165.519	C	15	4.43	7.39	5-6	(305)
4142.193	C	7	4.43	7.41	4-5	
4174.15	B	3	4.44	7.39	6-6	
4043.696	C	7	4.44	7.49	6-7	$b^3H-v^3I^\circ$ †
4056.793	C	5	4.43	7.47	5-6	(306)
4071.000	C	5	4.43	7.48	4-5	
3958.08	B	5	4.44	7.55	6-6	$b^3H-s^3H^\circ$
3979.22	B	6	4.43	7.53	5-5?	(307)
3998.85	B	4	4.43	7.51	4-4	
3562.29	B	5	4.44	7.90	6-6	$b^3H-q^3H^\circ$
3564.953	C	5	4.43	7.89	5-5	(308)
•3574.039	C	15	4.43	7.88	4-4	
5363.750	D	40	4.47	6.82	4-3	$z^3F^\circ-e^3D$
5278.262	C	40	4.45	6.79	3-2	(309)
5287.62	B	10w	4.43	6.77	2-1	
4503.05	B	12	4.68	7.42	2-1	$e^5S-x^3G^\circ$ (310)
4656.837	D	10	4.76	7.41	3-5	$a^1H-w^3I^\circ$ (311)
4564.166	C	40	4.76	7.46	5-6	$a^1H-y^1I^\circ$ (312)
3926.649	C	10	4.76	7.90	5-6	$a^1H-q^3H^\circ$ (313)
6135.759	C	25	4.80	6.82	3-3	$z^3D^\circ-e^3D$ (314)
•6762.41	C	40	5.26	7.08	6-6	$z^5G^\circ-e^5G$ †
6757.78	B	25	5.26	7.08	5-5	(315)
6751.28	B	40	5.25	7.08	4-4	
6744.66	B	15	5.25	7.08	3-3	
6738.81	B	18	5.25	7.08	2-2	
7908.30	A	20	5.60	7.16	6-5	$z^3H^\circ-e^3G$
7910.50	A	18	5.60	7.16	5-4	(318)
7917.85	A	18	5.60	7.16	4-3	

Strongest Unclassified Lines of Cr I

7771.74	A	15	
6789.17	C	18	
5854.37	B	75	
5796.757	C	40	
5753.692	C	25	V
5712.635	C	10	V
5681.198	C	60	V
5385.28	B	20v	
5370.356	C	40	
5078.711	C	40	
4884.949	C	25	IIIA
4752.084	C	50	IV
4614.73	B	10	
4611.968	C	15	
4594.403	C	8	
4588.99	B	8	
4489.471	C	5w	IV
4403.498	C	40	IV
4323.523	C	30	IV
4301.178	C	25	IV
4281.615	C	12	IV
4206.899	C	10	V
4200.103	O	12	III
4126.925	C	8	III
3999.679	C	7	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Cr I continued						
3911.95	B	(10n)•	(III			
			III			
3830.032	C	50w		V		
3584.366	D	30w		V		
3574.38	B	3N		III		
3559.21	C	2N		IV†		
3558.60	B	7w		III		
3552.953	C	4w		IV		
3550.635	C	10w		V		
3547.98	B	3n		III		
3532.888	C	5		V		
3525.44	B	4N		IV		
3508.81	B	5n		III		
3508.09	B	5		III		
3474.379	C	12		III		
3411.01	B	8n		IV		
3409.36	B	7n		IV		
3408.01	B	4n		IV		
3407.22	B	5n		IV		
3376.18	E	3n		V		
3349.072	C	20w		III		
3346.09	E	5w		III		
3334.690	C	20w		III		
3333.605	C	15w		III		
3287.70	B	2N		V		
3254.95	B	2N		V		
•3180.701§	C	?		III		
3096.531	C	5w		III		
3095.859	C	7w		III		
2963.73	B	3w		III		
2957.28	B	3w		V		

Cr II I P 16.6 Anal B List A April 1941

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3643.22	A	10	2.47	5.86	3½-4½	$a^4D-z^6F^o$
3644.70	A	10	2.44	5.83	2½-3½	(1)
3647.40	A	8	2.42	5.81	1½-2½	
3651.68	A	12	2.41	5.79	½-1½	
3675.00	P		2.47	5.83	3½-3½	
3669.69	P		2.44	5.81	2½-2½	
3665.48	P		2.42	5.79	1½-1½	
3662.62	P		2.41	5.78	½- ½	
3700.42	P		2.47	5.81	3½-2½	
3688.01	P		2.44	5.79	2½-1½	
3676.50	P		2.42	5.78	1½- ½	
3494.52	A	4	2.47	6.00	3½-3½	$a^4D-z^6P^o$
3484.15	A	20	2.44	5.99	2½-2½	(2)
•3475.13 §	A	20	2.42	5.97	1½-1½	
3511.84	A	35	2.47	5.99	3½-2½	
3495.37	A	25	2.44	5.97	2½-1½	
3467.09	P		2.44	6.00	2½-3½	
3464.02	A	4	2.42	5.99	1½-2½	
3462.73	A	6	2.41	5.97	½-1½	
3406.765	B	150	2.47	6.09	3½-2½	$a^4D-z^4P^o$
3422.739	B	125	2.44	6.05	2½-1½	(3)
3433.30	A	75	2.42	6.02	1½- ½	
3362.683	B	60	2.44	6.09	2½-2½	
3403.322	B	100	2.42	6.05	1½-1½	
3421.20	A	75	2.41	6.02	½- ½	
3363.71	A	12	2.42	6.09	1½-2½	
3391.434	B	35	2.41	6.05	½-1½	
3353.12	A	20	2.47	6.15	3½-4½	$a^4D-z^6D^o$
•3349.34 §	A	6	2.44	6.13	2½-3½	(4)
3324.060	B	25	2.42	6.14	1½-2½	
3328.351	B	20	2.41	6.12	½-1½	
3374.95	A	3	2.47	6.13	3½-3½?	
3342.51	A	50	2.44	6.14	2½-2½	
3339.804	B	50	2.42	6.12	1½-1½	
3336.330	B	40	2.41	6.11	½- ½	
3368.054	B	150	2.47	6.14	3½-2½	
3358.501	B	75	2.44	6.12	2½-1½	
3347.837	B	40	2.42	6.11	1½- ½	
3132.058	B	125	2.47	6.41	3½-4½	$a^4D-z^4F^o$
3124.978	B	100	2.44	6.39	2½-3½	(5)
3120.371	B	75	2.42	6.38	1½-2½	
3118.652	B	60	2.41	6.37	½-1½	
3147.227	B	50	2.47	6.39	3½-3½	
3136.680	B	40	2.44	6.38	2½-2½	
3128.699	B	40	2.42	6.37	1½-1½	
3159.10	A	5	2.47	6.36	3½-2½	
3145.10	A	10	2.44	6.37	2½-1½	
3670.16	P		2.53	5.89	5½-5½	$a^4G-z^6F^o$
3710.22	P		2.53	5.86	4½-4½	(6)
3742.99	P		2.53	5.83	3½-3½	
3768.57	P		2.53	5.81	2½-2½	
3709.25	P		2.53	5.86	5½-4½	
3743.20	P		2.53	5.63	4½-3½	
3769.37	P		2.53	5.81	3½-2½	
3787.89	P		2.53	5.79	2½-1½	
3671.12	P		2.53	5.69	4½-5½	
3710.01	P		2.53	5.66	3½-4½	
3742.20	P		2.53	5.83	2½-3½	
3556.130	B	(1)	2.53	6.00	4½-3½	$a^4G-z^6P^o$ (7)
3408.96	P		2.53	6.15	5½-4½	$a^4G-z^6D^o$
3432.32	A	2	2.53	6.13	4½-3½	(8)
3425.09	P		2.53	6.14	3½-2½	
3441.14	P		2.53	6.12	2½-1½	
3409.79	P		2.53	6.15	4½-4½	
3432.12	P		2.53	6.13	3½-3½	
3424.43	P		2.53	6.14	2½-2½	
3409.60	P		2.53	6.15	3½-4½	
3431.45	P		2.53	6.13	2½-3½	

Cr II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
•3180.73 §	A	75	2.53	6.41	5½-4½	$a^4G-z^4F^o$
3197.12	A	75	2.53	6.39	4½-3½	(9)
3209.21	A	50	2.53	6.38	3½-2½	
3217.44	A	50	2.53	6.37	2½-1½	
3181.428	B	20	2.53	6.41	4½-4½	
3196.96	A	20	2.53	6.39	3½-3½	
3208.62	A	20	2.53	6.38	2½-2½	
•3196.40	A	3	2.53	6.39	2½-3½	
3935.18	P		2.69	5.83	2½-3½	$a^4P-z^6F^o$
3964.64	P		2.69	5.81	1½-2½	(10)
3985.96	P		2.69	5.79	½-1½	
3964.35	P		2.69	5.81	2½-2½	
3986.03	P		2.69	5.79	1½-1½	
3999.00	P		2.69	5.78	½- ½	
3985.74	P		2.69	5.79	2½-1½	
3999.07	P		2.69	5.78	1½- ½	
3748.68	A	7	2.69	5.99	2½-2½	$a^4P-z^6P^o$
•3761.90	A	8	2.69	5.97	1½-1½	(11)
3761.69	A	7	2.69	5.97	2½-1½	
•3761.90	A	8	2.69	5.97	½-1½	
3631.49	A	50	2.69	6.09	2½-2½	$a^4P-z^4P^o$
3677.93	A	30	2.69	6.05	1½-1½	(12)
3712.97	A	35	2.69	6.02	½- ½	
3677.69	A	40	2.69	6.05	2½-1½	
3713.04	A	15	2.69	6.02	1½- ½	
3631.72	A	40	2.69	6.09	1½-2½	
3677.86	A	50	2.69	6.05	½-1½	
3593.02	P		2.69	6.13	2½-3½	$a^4P-z^6D^o$
3585.54	A	40	2.69	6.14	1½-2½	(13)
3603.80	A	40	2.69	6.12	½-1½	
3585.31	A	60	2.69	6.14	2½-2½	
3803.86	A	20	2.69	6.12	1½-1½	
3613.21	A	20	2.69	6.11	½- ½	
3603.61	A	20	2.69	6.12	2½-1½	
3613.26	A	15	2.69	6.11	1½- ½	
3336.16	A	2	2.69	6.39	2½-3½	$a^4P-z^4F^o$
3349.68	P		2.69	6.38	1½-2½	(14)
3032.927	B	30	2.69	6.76	2½-3½	$a^4P-z^4D^o$
3047.76	A	25	2.69	6.74	1½-2½	(15)
•3059.521	B	25	2.69	6.73	½-1½	
3047.63	A	20	2.69	6.74	2½-2½	
•3059.521	B	25	2.69	6.73	1½-1½	
3067.18	A	20	2.69	6.72	½- ½	
3059.41	A	10	2.69	6.73	2½-1½	
m3067.23	P	Cr+	2.69	6.72	1½- ½	
4458.84	P		3.09	5.86	3½-4½	$b^4D-z^6F^o$
4507.19	P		3.09	5.83	2½-3½	(16)
4544.70	P		3.09	5.61	1½-2½	
4571.24	P		3.09	5.79	½-1½	
4504.52	P		3.09	5.83	3½-3½	
4545.49	P		3.09	5.81	2½-2½	
4572.83	P		3.09	5.79	1½-1½	
4588.40	P		3.09	5.78	½- ½	
4542.77	P		3.09	5.81	3½-2½	
4573.63	P		3.09	5.79	2½-1½	
4590.00	P		3.09	5.76	1½- ½	
4236.33	P		3.09	6.00	3½-3½	$b^4D-z^6P^o$
4364.19	P		3.09	5.99	2½-2½	(17)
4280.33	P		3.09	5.97	1½-1½	
4261.80	P		3.09	5.99	3½-2½	
4281.03	P		3.09	5.97	2½-1½	
4238.69	P		3.09	6.00	2½-3½	
4263.49	P		3.09	5.99	1½-2½	
4278.94	P		3.09	5.97	½-1½	
•4111.01	A	18	3.09	6.09	3½-2½	$b^4D-z^4P^o$
4172.60	A	2	3.09	6.05	2½-1½	(18)
4217.07	A	1	3.09	6.02	1½- ½	
4113.24	A	5	3.09	6.09	2½-2½	
4171.92	A	3	3.09	6.05	1½-1½	
4215.77	A	2	3.09	6.02	½- ½	
4112.59	A	1	3.09	6.09	1½-2½	
4170.58	P		3.09	6.05	½-1½	
4030.28	P		3.09	6.15	3½-4½	$b^4D-z^6D^o$
4063.94	P		3.09	6.13	2½-3½	(19)
4053.45	A	1	3.09	6.14	1½-2½	
4075.63	P		3.09	8.12	½-1½	
4061.77	P		3.09	8.13	3½-3½	
4054.11	A	6	3.09	6.14	2½-2½	
4076.87	A	3	3.09	6.12	1½-1½	
4067.63	A	2	3.09	6.11	½- ½	
4051.97	A	12	3.09	6.14	3½-2½	
4077.50	A	4	3.09	8.12	2½-1½	
4088.90	A	1	3.09	6.11	1½- ½	
3715.19	A	20	3.09	6.41	3½-4½	$b^4D-z^4F^o$
3738.38	A	25	3.09	6.39	2½-3½	(20)
3754.59	A	20	3.09	6.38	1½-2½	
3765.62	A	6	3.09	6.37	½-1½	
3736.56	A	1	3.09	6.39	3½-3½	
3755.13	A	2	3.09	6.38	2½-2½	
3766.65	A	4	3.09	6.37	1½-1½	
3753.26	P		3.09	6.38	3½-2½	
3767.16	P		3.09	6.37	2½-1½	
3360.295	B	100	3.09	6.76	3½-3½	$b^4D-z^4D^o$
•3379.825§	B	60	3.09	6.74	2½-2½	(21)
3393.86	A	30	3.09	6.73	1½-1½	
3402.43	A	25	3.09	6.72	½- ½	
3378.337	B	25	3.09	6.74	3½-2½	
3394.32	A	35	3.09	6.73	2½-1½	
m3403.29	P	Cr+	3.09	6.72	1½- ½	
3361.770	B	30	3.09	6.76	2½-3½	
3379.371	B	30	3.09	6.74	1½-2½	
3393.00	A	35	3.09	6.73	½-1½	

Cr II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5626.60	P		3.81	6.00	2½-3½	$b^4P-z^6P^o$
5497.86	P		3.74	5.99	1½-2½	(22)
•5419.36	A	1	3.70	5.97	½-1½	
5671.62	P		3.81	5.99	2½-2½	
5525.90	P		3.74	5.97	1½-1½	
5701.46	P		3.81	5.97	2½-1½	
5407.62	A	10	3.81	6.09	2½-2½	$b^4P-z^4P^o$
5346.54	A	5	3.74	6.05	1½-1½	(23)
5318.41	A	4	3.70	6.02	½- ½	
5510.68	A	7	3.81	6.05	2½-1½	
5420.90	A	10	3.74	6.02	1½- ½	
5249.40	A	10	3.74	6.09	1½-2½	
5246.75	A	15	3.70	6.05	½-1½	
5322.78	P		3.81	6.13	2½-3½	$b^4P-z^6D^o$
5153.49	A	15	3.74	6.14	1½-2½	(24)
5097.29	A	7	3.70	6.12	½-1½	
5305.85	A	25	3.81	6.14	2½-2½	
5191.46	A	2	3.74	6.12	1½-1½	
5116.06	A	2	3.70	6.11	½- ½	
5346.12	P		3.81	6.12	2½-1½	
5210.87	A	7	3.74	6.11	1½- ½	
4777.78	P		3.81	6.39	2½-3½	$b^4P-z^4F^o$
4679.87	P		3.74	6.38	1½-2½	(25)
4621.41	P		3.70	6.37	½-1½	
4805.18	P		3.81	6.38	2½-2½	
4698.64	P		3.74	6.37	1½-1½	
4824.97	P		3.81	6.37	2½-1½	
4179.43	A	12	3.81	6.76	2½-3½	$b^4P-z^4D^o$
•4111.01	A	18	3.74	6.74	1½-2½	(26)
4072.56	A	4	3.70	6.73	½-1½	
4207.35	A	4	3.81	6.74	2½-2½	
4132.41	A	7	3.74	6.73	1½-1½	
4086.14	A	8	3.70	6.72	½- ½	
4229.81	A	1	3.81	6.73	2½-1½	
2976.718	B	35	3.81	7.96	2½-2½	$b^4P-y^4D^o$ †
•2961.732	B	50	3.74	7.91	1½-1½	(27)
2953.358	B	35	3.70	7.88	½- ½	
3011.42	A	7	3.81	7.91	2½-1½	
2984.69	A	10	3.74	7.88	1½- ½	
2971.906	B	75	3.75	7.90	6½-6½	$a^4H-z^4H^o$
2979.741	B	80	3.74	7.88	5½-5½	(28)
2985.325	B	75	3.73	7.86	4½-4½	
2989.194	B	70	3.72	7.85	3½-3½	
2988.056	C	12	3.75	7.88	6½-5½	
2992.40	A	10	3.74	7.86	5½-4½?	
2994.737	B	20	3.73	7.85	4½-3½	
2972.64	A	10	3.73	7.88	4½-5½	
5369.25	P		3.85	6.15	4½-4½	$a^4F-z^6D^o$
5410.39	P		3.85	6.13	3½-3½	(29)
5378.07	P		3.84	6.14	2½-2½	
5409.28	P		3.84	6.12	1½-1½	
5425.29	P		3.85	6.13	4½-3½	
5392.95	P		3.85	6.14	3½-2½	
•5419.36	A	1	3.84	6.12	2½-1½	
5430.41	P		3.84	6.11	1½- ½	
5354.66	P		3.85	6.15	3½-4½	
5395.41	P		3.84	6.13	2½-3½	
5368.10	P		3.84	6.14	1½-2½	
4824.13	A	75	3.85	6.41	4½-4½	$a^4F-z^4F^o$
4848.24	A	60	3.85	6.39	3½-3½	(30)
4864.32	A	50	3.84	6.38	2½-2½	
4876.41	A	50	3.84	6.37	1½-1½	
4860.20	A	20	3.85	6.39	4½-3½	
4878.48	P		3.85	6.38	3½-2½	
4884.57	A	10	3.84	6.37	2½-1½	
4812.35	A	25	3.85	6.41	3½-4½	
4836.22	A	25	3.84	6.39	2½-3½	
4856.19	A	20	3.84	6.38	1½-2½	
4242.38	A	30	3.85	6.76	4½-3½	$a^4F-z^4D^o$
4261.92	A	20	3.85	6.74	3½-2½	(31)
4275.57	A	30	3.84	6.73	2½-1½	
4284.31	A	20	3.84	6.72	1½- ½	
4233.25	A	10	3.85	6.76	3½-3½	
4252.62	A	10	3.84	6.74	2½-2½	
4269.28	A	10	3.84	6.73	1½-1½	
4224.09	P		3.84	6.76	2½-3½	
4246.41	A	2	3.84	6.74	1½-2½	
3063.84	A	7	3.85	7.88	4½-5½	$a^4F-z^4H^o$
•3072.47	A	6	3.85	7.86	3½-4½	(32)
2966.051	B	40	3.85	8.01	4½-3½	$a^4F-y^4D^o$
3003.924	B	35	3.85	7.96	3½-2½	(33)
3034.54	A	15	3.84	7.91	2½-1½	
3055.44	A	12	3.84	7.88	1½- ½	
2999.30	A	8	3.84	7.96	2½-2½	
5553.81	P		3.87	6.09	2½-2½	$a^2D-z^4P^o$
5721.02	P		3.89	6.05	1½-1½	(34)
5862.58	P		3.87	6.05	2½-1½	
5806.31	P		3.89	6.02	1½- ½	
5610.01	P		3.89	6.09	1½-2½	
5464.36	P		3.67	6.13	2½-3½	$a^2D-z^6P^o$
5500.61	P		3.89	6.14	1½-2½	(35)
5446.57	P		3.87	6.14	2½-2½	
5543.86	P		3.89	6.12	1½-1½	
5488.97	P		3.87	6.12	2½-1½	
5566.06	P		3.89	6.11	1½- ½	
4891.55	P		3.87	6.39	2½-3½	$a^2D-z^4F^o$
4964.34	P		3.69	6.38	1½-2½	(36)
4920.26	P		3.67	6.38	2½-2½	
4985.46	P		3.89	6.37	1½-1½	
4941.03	P		3.87	6.37	2½-1½	

Cr II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4266.23	P		3.87	6.76	2½-3½	a³D-z⁴D°
4328.91	P		3.89	6.74	1½-2½	(37)
4295.37	P		3.87	6.74	2½-2½	
4352.68	P		3.89	6.73	1½-1½	
4318.77	P		3.87	6.73	2½-1½	
4368.20	P		3.89	6.72	1½- ½	
5104.03	P		3.99	6.41	3½-4½	a³F-z⁴F°
m5210.88	P	Cr+	4.02	6.39	2½-3½	(38)
5144.47	P		3.99	6.39	3½-3½	
5243.50	P		4.02	6.38	2½-2½	
5176.26	P		3.99	6.38	3½-2½	
5267.10	A	4	4.02	6.37	2½-1½	
4539.62	A	2	4.02	6.74	2½-2½	a³F-z⁴D°
4565.78	A	10	4.02	6.73	2½-1½	(39)
3177.90	A	1	4.02	7.91	2½-1½	a³F-y⁴D°
						(40)
3026.85	A	20	3.99	8.07	3½-4½	a³F-z⁴G°
3061.59	A	8	4.02	8.06	2½-3½	(41)
3038.52	A	3	3.99	8.06	3½-3½	
3071.03	A	2	4.02	8.04	2½-2½	
2999.96	A	25	3.99	8.11	3½-4½	a³F-z³G°
3034.99	A	10	4.02	8.09	2½-3½	(42)
3012.34	A	2	3.99	8.09	3½-3½	
5237.34	A	75	4.06	6.41	4½-4½	b⁴F-z⁴F°
5274.99	A	20	4.05	6.39	3½-3½	(43)
5313.59	A	25	4.06	6.38	2½-2½	
5334.88	A	40	4.05	6.37	1½-1½	
5279.92	A	15	4.06	6.39	4½-3½	
5308.44	A	20	4.05	6.38	3½-2½	
5337.79	A	12	4.06	6.37	2½-1½	
5232.50	A	15	4.05	6.41	3½-4½	
5280.08	A	10	4.06	6.39	2½-3½	
5310.70	A	12	4.05	6.38	1½-2½	
4558.659	B	100	4.06	6.76	4½-3½	b⁴F-z⁴D°
4588.217	B	75	4.05	6.74	3½-2½	(44)
4618.83	A	35	4.06	6.73	2½-1½	
4634.11	A	25	4.05	6.72	1½- ½	
4555.02	A	20	4.05	6.76	3½-3½	
4592.09	A	20	4.06	6.74	2½-2½	
4616.64	A	18	4.05	6.73	1½-1½	
4558.83	P		4.06	6.76	2½-3½	
4589.89	A	3	4.05	6.74	1½-2½	
3225.44	A	8	4.06	7.88	4½-5½	b⁴F-z⁴H°
						(45)
3117.28	A	15	4.06	8.01	4½-3½	b⁴F-y⁴D°
3162.46	A	10	4.05	7.96	3½-2½	(46)
3203.53	A	15	4.06	7.91	2½-1½	
3229.38	A	8	4.05	7.88	1½- ½†	
3115.65	A	20	4.05	8.01	3½-3½	
3164.28	A	4	4.06	7.96	2½-2½	
3042.79	A	25	4.06	8.11	4½-5½	b⁴F-z⁴G°
3071.58	A	7	4.05	8.07	3½-4½	(47)
3065.36	A	10	4.06	8.06	2½-3½	
3093.97	A	15	4.05	8.04	1½-2½	
3073.25	A	15	4.06	8.07	4½-4½	
3083.62	A	10	4.05	8.06	3½-3½	
•3094.94	A	10	4.06	8.04	2½-2½	
3045.53	A	4	4.06	8.11	4½-4½	b⁴F-z³G°
3056.68	A	8w	4.05	8.09	3½-3½	(48)
3043.90	A	18	4.05	8.11	3½-4½	
3058.38	A	12	4.06	8.09	2½-3½	
2958.20	A	1	4.06	8.23	2½-1½	b⁴F-z²D°
						(49)
5478.35	A	15	4.16	6.41	5½-4½	b⁴G-z⁴F°
5502.05	A	12	4.15	6.39	4½-3½	(50)
5508.60	A	8	4.14	6.38	3½-2½	
5503.18	A	8	4.13	6.37	2½-1½	
5455.80	A	1	4.15	6.41	4½-4½	
5472.63	A	3	4.14	6.39	3½-3½	
5477.45	P		4.13	6.38	2½-2½	
3295.427	B	50	4.16	7.90	5½-6½	b⁴G-z⁴H°
3307.044	C	50	4.15	7.88	4½-5½	(51)
3311.929	B	40	4.14	7.86	3½-4½	
3312.18	A	40	4.13	7.85	2½-3½	
3315.29	A	12	4.16	7.88	5½-5½	
3322.69	A	12	4.15	7.86	4½-4½	
3323.53	A	8	4.14	7.85	3½-3½	
3193.41	A	2	4.15	8.01	4½-3½	b⁴G-y⁴D°
						(52)
•3131.54	A	5	4.16	8.10	5½-6½	b⁴G-z⁴I°
•3143.68 §	A	7	4.15	8.08	4½-5½	(53)
3154.04	A	5d	4.14	8.05	3½-4½	
3122.596	B	30	4.16	8.11	5½-5½	b⁴G-z⁴G°
m3147.19	P	Cr+	4.15	8.07	4½-4½	(54)
3150.11	A	20	4.14	8.08	3½-3½	
3149.83	A	20	4.13	8.04	2½-2½	
3154.66	P		4.18	8.07	5½-4½	
3159.88	A	5	4.15	8.06	4½-3½	
3160.11	A	3	4.14	8.04	3½-2½	
3115.28	A	12	4.15	8.11	4½-5½	
3137.55	A	8	4.14	8.07	3½-4½	
3139.91	A	8	4.13	8.06	2½-3½	
3125.46	A	7	4.18	8.11	5½-4½	b⁴G-z³G°
•3131.54	A	5	4.15	8.09	4½-3½	(55)
3118.14	A	10	4.15	8.11	4½-4½	
3121.37	A	7	4.14	8.09	3½-3½	
3108.66	A	10	4.14	8.11	3½-4½	
3111.95	A	15	4.13	8.09	2½-3½	

Cr II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
2985.02	A	7	4.14	8.27	3½-2½	b⁴G-z³D°
						(56)
2970.66	A	2	4.13	8.28	2½-1½	b⁴G-z³P°
						(57)
2968.67	A	15	4.16	8.32	5½-5½	b⁴G-y⁴G°
2963.46	A	20	4.15	8.31	4½-4½	(58)
2956.60	A	10	4.14	8.31	3½-3½	
•2965.19	A	2	4.15	8.31	4½-3½	
2955.71	A	2	4.14	8.31	3½-2½	
•2961.732	B	50	4.16	8.33	5½-4½	b⁴G-y⁴F° †
2959.97	A	18	4.15	8.32	4½-3½	(59)
2951.95	A	10	4.14	8.32	3½-2½	
2955.12	A	10	4.15	8.33	4½-4½†	
2951.40	A	10	4.14	8.32	3½-3½	
•3421.62	A	4	(4.30	7.90	5½-6½	a²H-z⁴H°
			4.28	7.88	4½-5½	(60)
3460.03	A	1	4.30	7.86	5½-4½	
3450.84	A	3	4.28	7.85	4½-3½	
3270.14	A	40	4.30	8.07	5½-4½	a²H-z⁴G°
3264.26	A	35	4.28	8.06	4½-3½	(61)
3250.79	A	10	4.28	8.07	4½-4½	
3245.31	A	5	4.30	8.10	5½-6½	a²H-z⁴I°
3247.01	A	4	4.28	8.08	4½-5½	(62)
3268.48	A	10	4.28	8.05	4½-4½	
3288.04	A	15	4.30	8.05	5½-4½	
3238.77	A	50	4.30	8.11	5½-4½	a²H-z²G°
3234.06	A	50	4.28	8.09	4½-3½	(63)
3219.79	A	10	4.28	8.11	4½-4½	
3053.65	A	10	4.28	8.32	4½-5½	a²H-y⁴G°
						(64)
3050.137	B	100	4.30	8.34	5½-6½	a²H-z²I°
3040.92	A	70	4.28	8.33	4½-5½	(65)
3057.86	A	12	4.30	8.33	5½-5½	
2953.706	B	45	4.28	8.45	4½-4½	a²H-z²H° †
2969.67	A	15	4.30	8.45	5½-4½	(66)
3400.08	A	2	4.28	7.91	½-1½	a²P-y⁴D°
3482.58	A	12	4.36	7.91	1½-1½	(67)
3430.42	A	3	4.28	7.88	½- ½	
3369.05	A	18	4.36	8.03	1½- ½	a²P-z²S°
3291.75	A	40	4.28	8.03	½- ½	(68)
3186.75	A	18	4.36	8.24	1½-2½	a²P-y⁴P°
3154.10	A	2	4.28	8.19	½-1½	(69)
3163.93	A	10	4.28	8.18	½- ½	
3158.03	A	20	4.36	8.27	1½-2½	a²P-z³D°
3125.02	A	15	4.28	8.23	½-1½†	(70)
3194.63	A	10	4.36	8.23	1½-1½	
3152.21	A	40	4.36	8.28	1½-1½	a²P-z³P°
3103.46	A	30	4.28	8.26	½- ½	(71)
3172.08	A	40	4.36	8.26	1½- ½	
3084.46	A	15	4.28	8.28	½-1½	
3121.05	A	8	4.36	8.32	1½-2½	a²P-y⁴F°
3121.84	A	10	4.36	8.32	1½-1½	(72)
3074.91	A	3	4.36	8.38	1½-2½	a²P-x⁴D°
3074.67	A	3	4.36	8.38	1½-1½	(73)
3034.05	A	5	4.36	8.43	1½-1½	a²P-z⁴S°
						(74)
3008.67	A	3	4.36	8.47	1½-2½	a²P-z²F°
						(75)
3557.85	P		4.40	7.86	3½-4½	b²F-z⁴H°
3566.37	A	1	4.39	7.85	2½-3½	(76)
•3466.25	A	2	4.40	7.96	3½-2½	b²F-y⁴D°
3508.67	P		4.39	7.91	2½-1½	(77)
3376.27	A	10	4.40	8.05	3½-4½	b²F-z⁴I°
						(78)
3357.40	A	40	4.40	8.07	3½-4½	b²F-z⁴G°
3387.42	A	12	4.39	8.06	2½-3½	(79)
3324.346	B	50	4.40	8.11	3½-4½	b²F-z³G°
3335.28	A	40	4.39	8.09	2½-3½	(80)
3212.53	A	20	4.40	8.24	3½-2½	b²F-y⁴P°
3247.33	A	8	4.39	8.19	2½-1½	(81)
3183.325	B	40	4.40	8.27	3½-2½	b²F-z²D°
3216.55	A	20	4.39	8.23	2½-1½	(82)
3179.45	A	8	4.39	8.27	2½-2½	
3173.58	A	15	4.39	8.28	2½-1½†	b²F-z²P°
						(83)
3149.12	A	4	4.40	8.31	3½-4½	b²F-y⁴G°
						(84)
3145.77	A	15	4.40	8.32	3½-2½	b²F-y⁴F°
3142.74	A	10	4.39	8.32	2½-1½	(85)
3098.16	A	18	4.40	8.38	3½-3½	b²F-x⁴D°
3095.22	A	3	4.39	8.38	2½-2½	(86)
3098.88	A	3	4.40	8.38	3½-2½	
•3094.94	A	10	4.39	8.38	2½-1½	
3015.510	B	50	4.40	8.49	3½-3½	b²F-z²F°
3028.125	B	40	4.39	8.47	2½-2½	(87)
3031.63	A	1	4.40	8.47	3½-2½	
3012.01	A	1	4.39	8.49	2½-3½	
3004.47	A	3	4.39	8.50	2½-3½	b²F-y⁴H°
						(88)

Cr II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3529.73	A	2	4.41	7.90	5½-6½	b²H-z⁴H°
3540.28	P		4.40	7.88	4½-5½	(89)
3552.50	P		4.41	7.86	5½-5½	
3558.22	P		4.40	7.86	4½-4½	
3570.57	P		4.41	7.86	5½-4½	
3571.64	P		4.40	7.85	4½-3½	
3387.73	A	5	4.41	8.05	5½-4½	b²H-z⁴I°
						(90)
3357.72	A	0	4.40	8.07	4½-4½	b²H-z⁴G°
3368.73	A	10	4.41	8.07	5½-4½	(91)
3372.13	A	15	4.40	8.06	4½-3½	
3335.46	A	30	4.41	8.11	5½-4½	b²H-z³G°
3339.90	A	20	4.40	8.09	4½-3½	(92)
3334.67	P		4.40	8.11	4½-4½	
3157.52	A	1	4.41	8.32	5½-5½	b²H-y⁴G°
3147.84	A	1	4.40	8.32	4½-5½	(93)
3135.74	A	30	4.41	8.34	5½-6½	b²H-z²I°
3134.33	A	25	4.40	8.33	4½-5½	(94)
3143.91	A	7	4.41	8.33	5½-5½	
3026.647	B	80	4.41	8.49	5½-5½	b²H-z²H°
3041.74	A	50	4.40	8.45	4½-4½	(95)
3050.75	D	4	4.41	8.45	5½-4½	
3017.80	A	5	4.40	8.49	4½-5½	
•2968.21 §	A	3	4.41	8.57	5½-6½	b²H-y⁴H°
						(96)
2958.54	A	2	4.41	8.58	5½-4½	b²H-x⁴F°
						(97)
3625.30	P		4.46	7.88	4½-5½	a²G-z⁴H°
3631.51	D	(1)	4.46	7.86	3½-4½	(98)
3644.12	P		4.48	7.86	4½-4½	
3635.43	P		4.46	7.85	3½-3½	
•3658.19	A	20	4.48	7.85	4½-3½†	
3428.94	A	7	4.46	8.06	3½-3½	a²G-z⁴G°
						(99)
3399.54	A	16	4.48	8.11	4½-4½	a²G-z³G°
3395.62	A	20	4.46	8.09	3½-3½	(100)
3415.47	D	1	4.48	8.09	4½-3½	
3199.87	A	10	4.46	8.31	3½-2½	a²G-y⁴G°
						(101)
3079.34	A	15	4.48	8.49	4½-5½	a²G-z³H°
3087.90	A	20	4.46	8.45	3½-4½	(102)
3104.29	A	3	4.48	8.45	4½-4½	
3077.24	A	16	4.46	8.49	4½-3½	a²G-z²F°
3077.79	A	25	4.46	8.47	3½-2½	(103)
3061.14	P		4.46	8.49	3½-3½	
2954.67	D	10	4.46	8.65	4½-4½	a²G-y²G°
•2957.56	A	5	4.46	8.63	3½-3½	(104)
6053.46	A	10	4.72	6.76	3½-3½	c⁴D-z⁴D°
6129.23	A	7	4.73	6.74	2½-2½	(105)
6195.18	A	3	4.74	6.73	1½-1½	
6239.77	A	1	4.74	6.72	½- ½	
6112.26	A	2	4.72	6.74	3½-2½	
6176.95	A	2	4.73	6.73	2½-1½	
6226.86	A	1	4.74	6.72	1½- ½	
6070.08	A	2	4.73	6.76	2½-3½	
6147.15	A	3	4.74	6.74	1½-2½	
6208.18	A	2	4.74	6.73	½-1½	
3895.16	A	2	4.74	7.91	½-1½	c⁴D-y⁴D°
						(106)
3513.03	A	10	4.72	8.24	3½-2½	c⁴D-y⁴P°
3565.31	A	5	4.73	8.19	2½-1½	(107)
3584.01	P		4.74	8.18	1½- ½	
3518.62	A	3	4.73	8.24	2½-2½	
3571.37	A	3	4.74	8.19	1½-1½	
3588.30	A	2	4.74	8.18	½- ½	
3524.54	P		4.74	8.24	1½-2½	
3575.69	P		4.74	8.19	½-1½	
•3506.61	A	1	4.74	8.26	1½- ½	c⁴D-z³P°
						(108)
3476.17	A	3	4.72	8.27	3½-2½	c⁴D-z²D°
3528.23	A	1	4.73	8.23	2½-1½	(109)
•3489.45	A	2	4.74	8.27	1½-2½	
3438.46	A	0	4.72	8.31	3½-2½	c⁴D-y⁴G°
3445.04	A	5	4.73	8.31	2½-3½	(110)
3426.13	D	6	4.72	8.33	3½-4½	c⁴D-y⁴F°
3437.93	A	2	4.73	8.32	2½-3½	(111)
3444.34	A	4	4.74	8.32	1½-2½	
3449.28	A	2	4.74	8.32	½-1½	
•3376.72	A	5	4.72	8.38	3½-3½	c⁴D-x⁴D°
3382.79	P		4.73	8.38	2½-2½	(112)
3387.96	A	3	4.74	8.38	1½-1½	
3278.79	A	2	4.72	8.49	3½-3½	c⁴D-z²F°
						(113)
3201.26	A	25	4.72	8.58	3½-4½	c⁴D-x⁴F°
3205.11	A	25	4.73	8.58	2½-3½	(114)
3212.91	A	18	4.74	8.58	1½-2½	
3229.89	A	10	4.74	8.56	½-1½	
3200.45	A	10	4.72	8.58	3½-3½	
3208.02	A	8	4.73	8.58	2½-2½	
3226.36	A	4	4.74	8.56	1½-1½	
3164.48	A	1	4.74	8.64	1½-2½	c⁴D-y³D°
•3196.40	A	3	4.74	8.60	1½-1½	(115)
•3072.47	A	8	4.73	8.75	2½-3½	c⁴D-y²F°
3102.58	A	2	4.74	8.71	1½-2½	(116)

Cr II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3727.37	A	40	4.78	8.07	4½-4½	$b^2G-z^4G^\circ$
3737.55	A	10	4.75	8.06	3½-3½	(117)
3751.60	A	3 Zr?	4.75	8.04	3½-2½	
3688.87	A	20	4.76	8.11	4½-4½	$b^2G-z^3G^\circ$
3698.00	A	35	4.75	8.09	3½-3½	(118)
3705.40	P		4.78	8.09	4½-3½	
3879.34	P		4.75	8.11	3½-4½	
3313.08	A	20	4.78	8.49	4½-5½	$b^2G-z^2H^\circ$
3335.93	A	4	4.75	8.45	3½-4½	(119)
3341.98	A	5	4.78	8.45	4½-4½	
*3310.65	A	35	4.78	8.49	4½-3½	$b^2G-z^2F^\circ$
3334.10	A	20	4.75	8.47	3½-2½	(120)
3304.73	A	5	4.75	8.49	3½-3½	
3286.25	A	8	4.76	8.54	4½-5½	$b^2G-y^4H^\circ$
3279.54	A	5	4.75	8.52	3½-4½	(121)
3231.84	A	8	4.76	8.58	4½-4½	$b^2G-x^4F^\circ$ (122)
3169.20	A	25	4.76	8.65	4½-4½	$b^2G-y^2G^\circ$
3184.36	A	15	4.75	8.63	3½-3½	(123)
3189.85	A	12	4.76	8.63	4½-3½	
m3163.77	P	Cr	4.75	8.65	3½-4½	
3140.21	A	25	4.76	8.69	4½-5½	$b^2G-y^3H^\circ$
3135.35	A	20	4.75	8.69	3½-4½	(124)
3140.67	A	1	4.76	8.69	4½-4½	
3093.48	A	40	4.76	8.75	4½-5½	$b^2G-x^4G^\circ$
3107.58	A	50	4.75	8.73	3½-4½	(125)
3112.81	P		4.76	8.73	4½-4½	
m3132.12	P	Cr+	4.75	8.69	3½-3½	
3142.97	A	8	4.75	8.68	3½-2½	
3096.11	A	35	4.76	8.75	4½-3½	$b^2G-y^2F^\circ$
3118.78	A	20	4.75	8.71	3½-2½	(126)
3090.94	A	2w	4.75	8.75	3½-3½	
4161.27	P		4.92	7.88	4½-5½	$c^2G-z^4H^\circ$
4181.56	P		4.90	7.86	3½-4½	(127)
4188.08	P		4.92	7.86	4½-4½	
4179.92	P		4.90	7.85	5½-3½	
4204.68	P		4.92	7.85	4½-3½	
3905.88	P		4.92	8.08	4½-5½	$c^2G-z^4I^\circ$
3915.30	P		4.90	8.05	3½-4½	(128)
3936.95	A	1	4.92	8.05	4½-4½	
3862.17	P		4.92	8.11	4½-5½	$c^2G-z^4G^\circ$
3889.90	P		4.90	8.07	3½-4½	(129)
3911.32	A	3	4.92	8.07	4½-4½	
3909.25	P		4.90	8.08	3½-3½	
3930.88	P		4.92	8.06	4½-3½	
3924.65	P		4.90	8.04	3½-2½	
3866.54	A	7	4.92	8.11	4½-4½	$c^2G-z^3G^\circ$
3866.01	A	5	4.90	8.09	3½-3½	(130)
3696.78	A	8	4.90	8.24	3½-2½	$c^2G-y^4P^\circ$ (131)
3814.26	A	2	4.90	8.31	3½-2½	$c^2G-y^4G^\circ$ (132)
3608.66	A	3	4.90	8.32	3½-3½	$c^2G-y^4F^\circ$ (133)
3583.92	A	5	4.92	8.38	4½-3½	$c^2G-x^4D^\circ$
3547.10	A	3	4.90	8.38	3½-2½	(134)
3546.15	P		4.90	8.38	3½-3½	
3457.62	A	30	4.92	8.49	4½-5½	$c^2G-z^2H^\circ$
3472.07	A	25	4.90	8.45	3½-4½	(135)
3489.07	A	2	4.92	8.45	4½-4½	
3454.98	A	35	4.92	8.49	4½-3½	$c^2G-z^2F^\circ$
3459.29	A	25	4.90	8.47	3½-2½	(136)
3301.21	A	18	4.92	8.65	4½-4½	$c^2G-y^2G^\circ$
3308.15	A	18	4.90	8.63	3½-3½	(137)
3285.96	A	20	4.90	8.65	3½-4½	
3289.77	A	15	4.92	8.69	4½-5½	$c^2G-y^2H^\circ$
3255.30	A	15	4.90	8.69	3½-4½	(138)
3235.26	A	4	4.90	8.71	3½-2½	$c^2G-y^2F^\circ$ (139)
3219.13	A	18	4.92	8.75	4½-5½	$c^2G-x^2G^\circ$
3225.39	A	12	4.90	8.73	3½-4½	(140)
3240.07	A	7	4.92	8.73	4½-4½	
*2957.56	A	5	4.90	9.07	3½-3½	$c^2G-w^4D^\circ$ (141)
3945.11	D	(1)	4.92	8.05	3½-4½	$c^2F-z^4I^\circ$ (142)
3874.41	P		4.92	8.11	3½-4½	$c^2F-z^2G^\circ$
3874.78	P		4.91	8.09	2½-3½	(143)
3895.12	A	1	4.92	8.09	3½-3½	
3723.40	A	15	4.92	8.24	3½-3½	$c^2F-y^4P^\circ$
3756.55	A	3	4.91	8.19	2½-1½	(144)
3684.25	A	25	4.92	8.27	3½-2½	$c^2F-z^2D^\circ$
3715.45	A	20	4.91	8.23	2½-1½	(145)
3668.02	P		4.91	8.27	2½-2½	
*3858.19	A	20	4.91	8.28	2½-1½?	$c^2F-z^2P^\circ$ (146)
3825.92	P		4.92	8.33	3½-4½	$c^2F-y^4F^\circ$
3815.45	P		4.91	8.32	2½-3½	(147)
3833.18	P		4.92	8.32	3½-3½	
3618.29	P		4.91	8.32	2½-2½	
3834.04	A	10	4.92	8.32	3½-2½	
3817.32	A	7	4.91	8.32	2½-1½	

Cr II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3461.28	A	3	4.92	8.49	3½-3½	$c^2F-z^2F^\circ$
*3468.25	A	2	4.91	8.47	2½-2½	(148)
m3482.56	P	Cr+	4.92	8.47	3½-2½	
3445.20	P		4.91	8.49	2½-3½	
3374.99	A	8	4.92	8.58	3½-4½	$c^2F-x^4F^\circ$
3377.36	A	5	4.92	8.58	3½-2½	(149)
*3376.72	A	5	4.91	8.56	2½-1½	
3308.95	A	50	4.92	8.65	3½-4½	$c^2F-y^2G^\circ$
3314.57	A	35	4.91	8.63	2½-3½	(150)
3329.45	A	4	4.92	8.83	3½-3½	
3275.92	A	10	4.92	8.69	3½-4½	$c^2F-y^2H^\circ$ (151)
3258.01	A	3	4.91	8.69	2½-3½	$c^2F-x^4G^\circ$
m3269.75	P	Cr+	4.91	8.68	2½-2½	(152)
3227.48	A	3	4.92	8.75	3½-3½	$c^2F-y^2F^\circ$
3241.38	A	4	4.91	8.71	2½-2½	(153)
3255.62	A	3	4.92	8.71	3½-2½	
3213.46	A	3	4.91	8.75	2½-3½	
3044.24	A	10	4.92	8.98	3½-4½	$c^2F-x^2G^\circ$
3038.04	A	6	4.91	8.97	2½-3½	(154)
4227.73	A	1	4.96	7.88	6½-5½	$b^2I-z^4H^\circ$ (155)
3650.37	A	40	4.96	8.34	6½-6½	$b^2I-z^2I^\circ$
3664.95	A	30	4.97	8.33	5½-5½	(156)
3661.44	A	3	4.96	8.33	6½-5½	
3653.85	P		4.97	8.34	5½-6½	
*3503.36 §	A	3	4.96	8.49	6½-5½	$b^2I-z^2H^\circ$
3539.00	A	4	4.97	8.45	5½-4½	(157)
*3508.81	A	1	4.97	8.49	5½-5½	
*3310.65	A	35	4.96	8.69	6½-5½	$b^2I-y^2H^\circ$
3314.06	A	18	4.97	8.69	5½-4½	(158)
3258.77	A	30	4.98	8.75	6½-5½	$b^2I-x^4G^\circ$
3283.04	A	20	4.97	8.73	5½-4½	(159)
3261.56	A	4	4.97	8.75	5½-5½	
*2965.19	A	2	4.96	9.13	6½-6½	b^2I-1° (160)
4195.41	A	10	5.30	8.24	2½-2½	$b^2D-y^4P^\circ$
4278.10	A	1	5.31	8.19	1½-1½	(161)
4145.77	A	25	5.30	8.27	2½-2½	$b^2D-z^2D^\circ$
4224.85	A	20	5.31	8.23	1½-1½	(162)
4209.02	A	3	5.30	8.23	2½-1½	
4161.05	A	2	5.31	8.27	1½-2½	
4135.77	P		5.30	8.28	2½-1½	$b^2D-z^2P^\circ$
4185.50	P		5.31	8.26	1½-½	(163)
4151.00	A	5	5.31	8.28	1½-1½	
4089.49	A	2	5.30	8.31	2½-2½	$b^2D-y^4G^\circ$ (184)
4081.21	A	1	5.30	8.32	2½-3½	$b^2D-y^4F^\circ$
4082.30	A	10	5.30	8.32	2½-2½	(165)
4098.44	A	8	5.31	8.32	1½-1½	
4002.48	A	5	5.30	8.38	2½-3½	$b^2D-x^4D^\circ$
4017.98	A	3	5.31	8.38	1½-2½	(166)
3865.59	A	75	5.30	8.49	2½-3½	$b^2D-z^2F^\circ$
3905.84	A	25	5.31	8.47	1½-2½	(167)
3892.14	A	4	5.30	8.47	2½-2½	
3701.90	A	4	5.30	8.63	2½-3½	$b^2D-y^2G^\circ$ (168)
3694.98	A	4	5.30	8.64	2½-2½	$b^2D-y^2D^\circ$
3707.13	A	3	5.31	8.64	1½-2½	(169)
m3631.48	P	Cr+	5.30	8.69	2½-3½	$b^2D-x^4G^\circ$
3657.94	A	1	5.31	8.68	1½-2½	(170)
3576.23	P		5.30	8.75	2½-3½	$b^2D-y^2F^\circ$
3622.45	A	1	5.31	8.71	1½-2½	(171)
3610.85	P		5.30	8.71	2½-2½	
3276.28	A	1	5.30	9.06	2½-1½	$b^2D-w^4D^\circ$
*3286.34 §	A	0	5.31	9.06	1½-½	(172)
3202.52	A	15	5.30	9.15	2½-3½	$b^2D-x^2F^\circ$
3178.79	A	7	5.31	9.19	1½-2½	(173)
3169.85	A	2w	5.30	9.19	2½-2½	
3190.69	A	6	5.31	9.17	1½-2½	$b^2D-w^4F^\circ$ (174)
3141.80	A	4	5.30	9.22	2½-1½	$b^2D-x^4P^\circ$ (175)
4761.42	A	1	5.65	8.24	2½-2½	$c^2D-y^4P^\circ$
4832.97	P		5.64	8.19	1½-1½	(176)
4697.62	A	2	5.65	8.27	2½-2½	$c^2D-z^2D^\circ$ (177)
4884.77	A	1	5.65	8.28	2½-1½	$c^2D-z^2P^\circ$
4715.12	D	1	5.84	8.26	1½-½	(178)
4671.36	P		5.64	8.28	1½-1½	
4341.09	A	7	5.65	8.49	2½-3½	$c^2D-z^2F^\circ$
*4382.93 §	A	3	5.64	8.47	1½-2½	(179)
4374.61	P		5.65	8.47	2½-2½	
4204.83	P		5.65	8.58	2½-3½	$c^2D-x^4F^\circ$
4199.02	P		5.64	8.58	1½-2½	(180)
4209.84	P		5.65	8.58	2½-2½	
4222.00	A	1	5.64	8.56	1½-1½	
4232.98	P		5.65	8.56	2½-1½	

Cr II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4127.08	A	3	5.65	8.64	2½-2½	$c^2D-y^2D^\circ$
4170.86	A	1	5.64	8.60	1½-1½	(181)
4181.50	A	1	5.65	8.60	2½-1½	
4116.66	A	2	5.64	8.64	1½-2½	
4048.02	P		5.65	8.69	2½-3½	$c^2D-x^4G^\circ$
4056.07	A	4	5.64	8.68	1½-2½	(182)
4066.16	P		5.65	8.68	2½-2½	
3979.51	A	20	5.65	8.75	2½-3½	$c^2D-y^2F^\circ$
*4012.50 §	A	30	5.64	8.71	1½-2½	(183)
4022.36	A	3	5.85	8.71	2½-2½	
3522.13	A	7	5.65	9.15	2½-3½	$c^2D-x^2F^\circ$ (184)
m3484.16	P	Cr+	5.65	9.19	2½-3½	$c^2D-w^4F^\circ$
*3489.45	A	2	5.64	9.17	1½-2½	(185)
3125.79	A	5	5.65	9.59	2½-1½	$c^2D-y^2P^\circ$
3113.59	A	5	5.64	9.60	1½-½	(186)
6089.69	A	15	6.46	8.49	4½-5½	$d^2G-z^2H^\circ$
6179.17	A	10	6.46	8.45	3½-4½	(187)
6188.00	P		6.46	8.45	4½-4½	
6081.51	A	3	6.46	8.49	4½-3½	$d^2G-z^2F^\circ$
6138.77	A	2	6.46	8.47	3½-2½	(188)
5620.63	A	12	6.46	8.65	4½-4½	$d^2G-y^2G^\circ$
5678.42	A	10	6.46	8.63	3½-3½	(189)
4901.65	A	15	6.46	8.98	4½-4½	$d^2G-x^2G^\circ$
4912.49	A	12	6.46	8.97	3½-3½	(190)
4465.78	A	4	6.46	9.22	4½-5½	$d^2G-x^2H^\circ$
4511.82	P		6.46	9.19	3½-4½	(191)
4516.56	P		6.46	9.19	4½-4½	
4256.16	A	5	6.46	9.36	4½-4½	$d^2G-w^2G^\circ$
4268.93	A	1	6.46	9.35	3½-3½	(192)
4070.90	A	10	6.46	9.49	4½-3½	$d^2G-w^2F^\circ$
4049.14	A	18	6.46	9.50	3½-2½	(193)
4067.05	P		6.46	9.49	3½-3½	
4038.03	A	25	6.46	9.52	4½-5½	$d^2G-w^2H^\circ$
4003.33	A	25	6.46	9.54	3½-4½	(194)
4007.04	P		6.46	9.54	4½-4½	
3089.75	A	1	6.46	10.45	4½-3½	$d^2G-u^2F^\circ$ (195)
6418.87	A	7	6.66	8.58	4½-4½	$c^4F-x^4F^\circ$
6271.83	A	5	6.61	8.58	3½-3½	(196)
6168.46	A	2	6.58	8.58	2½-2½	
6415.59	A	1	6.66	8.58	4½-3½	
6282.92	A	2	6.61	8.58	3½-2½	
6274.94	A	1	6.61	8.58	3½-4½	
6088.00	A	7	6.66	8.69	4½-5½	$c^4F-y^2H^\circ$
6069.69	A	1	6.66	8.69	4½-4½	(197)
5895.90	A	4	6.66	8.75	4½-5½	$c^4F-x^4G^\circ$
5841.86	A	5	6.61	8.73	3½-4½	(198)
5827.24	A	5	6.58	8.69	2½-3½	
5110.43	A	2	6.66	9.07	4½-3½	$c^4F-w^4D^\circ$ (199)
4857.60	A	2	6.66	9.20	4½-4½	$c^4F-w^4F^\circ$ (200)
5137.09	A	7	6.79	9.20	2½-2½	$c^4P-x^4P^\circ$
5091.14	A	2	6.80	9.22	1½-1½	(201)
5076.15	A	4	6.79	9.22	2½-1½	

Strongest Unclassified Lines of Cr II

6305.60	A	4
5913.87	A	3
4952.78	A	10
3814.00	A	12
3801.21	A	10 Cr I?
3778.69	A	6
3750.56	A	12
3711.29	A	7
3495.56	A	20
3198.00	A	15

Mn I	I	P	7.40	Anal B	List B	May 1941	
5394.674	B	10	0.00	2.29	2½-3½	$a^6S-z^8P^\circ$	
5432.548	B	4	0.00	2.27	2½-2½	(1)	
4030.755 //	B	200R	0.00	3.06	2½-3½	$a^6S-z^6P^\circ$	
4033.073	B	150R	0.00	3.06	2½-2½	(2)	
4034.490	B	100R	0.00	3.06	2½-1½		
3224.761	B	10	0.00	3.83	2½-2½	$a^6S-z^4P^\circ$	
3216.946	B	8	0.00	3.84	2½-1½	(3)	
5341.065	B	20	2.11	4.42	4½-3½	$a^6D-y^6P^\circ$	
5420.362	B	10	2.13	4.41	3½-2½	(4)	
*5481.396	B	4	2.15	4.41	2½-1½		
5407.424	B	5	2.13	4.42	3½-3½		
5470.638	B	8	2.15	4.41	2½-2½		
5516.771	B	7	2.17	4.41	1½-1½		
5457.471	B	1	2.15	4.42	2½-3½		
5505.889	B	2	2.17	4.41	1½-2½		
5537.756	B	5	2.18	4.41	½-1½		

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Mn I continued						
4041.361	B	50r	2.11	5.18	4½-4½	a⁶D-z⁶D°
4055.543	B	20	2.13	5.18	3½-3½	(5)
4063.528	B	8	2.15	5.19	2½-2½	
4068.003	B	(2)	2.17	5.20	1½-1½	
4070.279	B	5	2.18	5.21	½- ½	
4018.102	B	20	2.11	5.18	4½-3½	
4035.728	B	15	2.13	5.19	3½-2½	
4048.755	B	15	2.15	5.20	2½-1½	
4058.930	B	10	2.17	5.21	1½- ½	
4079.241	B	12	2.13	5.18	3½-4½	
4083.628	B	12	2.15	5.18	2½-3½	
4082.944	B	12	2.17	5.19	1½-2½	
4079.422	B	10	2.18	5.20	½-1½	
3806.719	B	20r	2.11	5.35	4½-5½	a⁶D-z⁶F°
3823.513	B	20r	2.13	5.36	3½-4½	(6)
3834.364	B	12	2.15	5.37	2½-3½	
3841.082	B	10	2.17	5.38	1½-2½	
3843.983	B	7	2.18	5.39	½-1½	
3790.215	B	10	2.11	5.36	4½-4½	
3809.592	B	10	2.13	5.37	3½-3½	
3823.893	B	10	2.15	5.38	2½-2½	
3833.862	B	8	2.17	5.39	1½-1½	
3839.777	B	8	2.18	5.39	½- ½	
3776.527	B	(1)	2.11	5.37	4½-3½	
3799.259	B	4	2.13	5.38	3½-2½	
3816.753	B	5	2.15	5.39	2½-1½	
3829.680	B	5	2.17	5.39	1½- ½	
3670.517	B	5	2.11	5.47	4½-4½	a⁶D-z⁴F°
3669.838	B	4	2.13	5.50	3½-3½	(7)
3669.399	B	(1)	2.15	5.52	2½-2½	
3639.14	P		2.11	5.50	4½-3½	
3701.730	B	4	2.13	5.47	3½-4½	
3692.812	B	(1)	2.15	5.50	2½-3½	
3685.212	B	(1)	2.17	5.52	1½-2½	
3678.46	P		2.18	5.53	½-1½	
3577.880	B	40	2.11	5.55	4½-3½	a⁶D-x⁶P°
3586.543	B	30	2.13	5.57	3½-2½	(8)
3595.119	B	20	2.15	5.59	2½-1½	
3607.537	B	20	2.13	5.55	3½-3½	
3608.494	B	20	2.15	5.57	2½-2½	
3610.299	B	20	2.17	5.59	1½-1½	
3629.741	B	12	2.15	5.55	2½-3½	
3623.792	B	15	2.17	5.57	1½-2½	
3619.284	B	15	2.18	5.59	½-1½	
3330.668	B	8	2.15	5.88	2½-1½	a⁶D-1°
3343.731	B	4	2.17	5.86	1½-1½	(9)
3351.424	C	(1)	2.18	5.86	½-1½	
3280.756	B	5	2.13	5.89	3½-2½	a⁸D-3°
3311.905	B	8	2.17	5.89	1½-2½	(10)
3296.027	B	4	2.15	5.90	2½-1½	a⁶D-4°
3308.785	B	(3)	2.17	5.90	1½-1½	(11)
3316.324	B	4	2.18	5.90	½-1½	
3254.039	B	5	2.11	5.90	4½-3½	a⁶D-3°
3278.553	B	5	2.13	5.90	3½-3½	(12)
3296.882	B	8	2.15	5.90	2½-3½	
3240.399	B	7	2.11	5.91	4½-	a⁸D-5°
3264.711	B	10	2.13	5.91	3½-	(13)
3228.090	B	30	2.11	5.93	4½-5½	a⁸D-y⁶F°
3236.778	B	20	2.13	5.95	3½-4½	(14)
3248.516	B	15	2.15	5.95	2½-3½	
3256.137	B	12	2.17	5.98	1½-2½	
3260.231	B	10	2.18	5.98	½-1½	
3212.884	B	15	2.11	5.95	4½-4½	
3230.719	B	12	2.13	5.95	3½-3½	
3243.780	B	12	2.15	5.98	2½-2½	
3252.948	B	12	2.17	5.96	1½-1½	
3258.413	8	10	2.18	5.96	½- ½	
3206.908	B	5	2.11	5.95	4½-3½	
3226.034	B	6	2.13	5.96	3½-2½	
3240.616	B	5	2.15	5.96	2½-1½	
3251.135	B	5	2.17	5.96	1½- ½	
3044.567	B	50	2.11	6.16	4½-3½	a⁶D-w⁶P°
3054.362	B	40	2.13	6.17	3½-2½	(15)
3062.119	B	20	2.15	6.18	2½-1½	
3066.019	8	20	2.13	6.16	3½-3½	
3070.266	8	20	2.15	6.17	2½-2½	
3073.126	B	20	2.17	6.18	1½-1½	
3082.052	8	(2)	2.15	6.16	2½-3½	
3081.330	8	10	2.17	6.17	1½-2½	
3079.627	B	15	2.18	6.18	½-1½	
4823.516	B	50	2.31	4.87	4½-3½	z⁸P°-e⁸S
4783.420	8	50	2.29	4.87	3½-3½	(18)
4754.042	8	50	2.27	4.87	2½-3½	
4370.875	B	(1)	2.29	5.11	3½-2½	z⁸P°-e⁸S † (17)
3569.493	B	60	2.31	5.77	4½-5½	z⁸P°-e⁸D
3547.802	B	50	2.29	5.77	3½-4½	(18)
3531.848	B	30	2.27	5.77	2½-3½	
3569.804	B	40	2.31	5.77	4½-4½	
3548.029	B	40	2.29	5.77	3½-3½	
3531.998	8	50	2.27	5.77	2½-2½	
3570.041	B	30	2.31	5.77	4½-3½	
3548.202	B	30	2.29	5.77	3½-2½	
3532.121	B	50	2.27	5.77	2½-1½	
3178.495	B	15	2.31	8.19	4½-3½	z⁸P°-r⁸S
3161.039	B	15	2.29	8.19	3½-3½	(19)
3148.179	8	15	2.27	8.19	2½-3½	
4965.861	8	3	2.88	5.38	3½-4½	a⁴D-z⁸F°
5004.907	B	2	2.91	5.37	2½-3½	(20)
5029.812	8	(1)	2.93	5.38	1½-2½	
5042.589	8	(1)	2.94	5.39	½-1½	
4942.418	B	(2)	2.88	5.37	3½-3½	
Mn I continued						
4762.376	B	30	2.88	5.47	3½-4½	a⁴D-z⁴F°
4766.430	B	20	2.91	5.50	2½-3½	(21)
4765.859	B	10	2.93	5.52	1½-2½	
4761.526	B	10	2.94	5.53	½-1½	
4709.715	B	10	2.88	5.50	3½-3½	
4727.478	B	10	2.91	5.52	2½-2½	
4739.108	B	8	2.93	5.53	1½-1½	
4671.688	B	3	2.88	5.52	3½-2½	
4701.159	B	3	2.91	5.53	2½-1½	
4451.586	B	15	2.88	5.85	3½-3½	a⁴D-z⁴D°
4464.677	B	8	2.91	5.67	2½-2½	(22)
4470.138	B	6	2.93	5.89	1½-1½	
4472.792	B	5	2.94	5.70	½- ½	
4414.879	B	10	2.88	5.87	3½-2½	
4436.352	B	8	2.91	5.69	2½-1½	
4453.005	B	6	2.93	5.70	1½- ½	
4502.220	B	7	2.91	5.65	2½-3½	
4498.897	B	7	2.93	5.67	1½-2½	
4490.081	B	5	2.94	5.69	½-1½	
4235.290	B	8	2.88	5.79	3½-2½	a⁴D-y⁴P°
4235.140	B	6	2.91	5.82	2½-1½	(23)
4239.725	B	5	2.93	5.84	1½- ½	
4281.099	B	8	2.91	5.79	2½-2½	
4285.924	B	8	2.93	5.82	1½-1½	
4257.859	B	5	2.94	5.84	½- ½	
4312.550	B	3	2.93	5.79	1½-2½	
4284.084	B	(4)	2.94	5.82	½-1½	
3696.568	B	8	2.88	6.21	3½-4½	a⁴D-y⁴F°
3728.889	B	(1)	2.91	6.22	2½-3½	(24)
3750.763	B	(2)	2.93	6.22	1½-2½	
3763.377	B	(2)	2.94	6.22	½-1½	
3694.115	B	(1)	2.88	6.22	3½-3½	
3726.931	B	(1)	2.91	6.22	2½-2½	
3601.782	C	(1)	2.91	6.33	2½-2½	a⁴D-x⁴P°
3605.691	B	(1)	2.93	6.35	1½-1½	(25)
3583.876	B	(2)	2.91	8.35	2½-1½	
3589.973	C	(1)	2.93	6.37	1½- ½	
3407.960	C	(1)	2.91	6.53	2½-2½	a⁴D-v⁶P° (28)
6021.802	C	50	3.08	5.11	3½-3½	z⁸P°-e⁶S
6016.637	C	40	3.06	5.11	2½-2½	(27)
6013.498	B	30	3.06	5.11	1½-2½	
4462.022	B	20	3.06	5.83	3½-4½	z⁶P°-e⁶D
4458.262	B	12	3.08	5.83	2½-3½	(28)
4455.821	B	8	3.06	5.83	1½-2½	
4461.085	B	8	3.06	5.83	3½-3½	
4457.549	B	8	3.06	5.83	2½-2½	
4455.318	B	8	3.08	5.83	1½-1½	
4460.377	B	3	3.06	5.83	3½-2½	
4457.045	B	5	3.08	5.83	2½-1½	
4455.012	B	5	3.08	5.83	1½- ½	
4081.742	B	5	3.06	8.10	3½-2½	z⁸P°-r⁶S
4059.392	B	5	3.06	8.10	2½-2½	(29)
4057.950	B	4	3.08	8.10	1½-2½	
3317.305	B	10n	3.06	6.78	3½-4½	z⁸P°-g⁶D
3314.878	C	6n	3.06	8.78	2½-3½	(30)
*3313.524	B	(4/4)	3.06	6.78	1½-2½	
3318.440	C	5n	3.06	6.78	3½-3½	
3314.393	C	6n	3.06	6.78	2½-2½	
5504.21	B	(2)	3.12	5.36	5½-4½	a⁴G-z⁶F°
*5481.396	B	4	3.12	5.37	4½-3½	(31)
5460.844	C	(1)	3.12	5.38	3½-2½	
5444.096	C	(1n)	3.12	5.39	2½-1½	
5510.174	C	(1)	3.12	5.36	4½-4½	
5255.325	B	4	3.12	5.47	5½-4½	a⁴G-z⁴F°
5196.591	B	3	3.12	5.50	4½-3½	(32)
5150.890	B	3	3.12	5.52	3½-2½	
*5117.937	B	3	3.12	5.53	2½-1½	
5260.771	B	(3)	3.12	5.47	4½-4½	
5197.318	B	1	3.12	5.50	3½-3½	
5149.13	B	(1)	3.12	5.52	2½-2½	
3988.828	B	3	3.12	6.21	5½-4½	a⁴G-y⁴F°
3987.098	B	(1)	3.12	6.22	4½-3½	(33)
3985.241	B	3	3.12	8.22	3½-2½	
3982.583	B	(2)	3.12	6.22	2½-1½	
3989.958	C	(1)	3.12	6.21	4½-4½	
3987.464	B	(2)	3.12	6.22	3½-3½	
3984.177	B	(1)	3.12	8.22	2½-2½	
3986.395	C	(2)	3.12	6.22	2½-3½	
3047.035	B	15	3.12	7.17	5½-5½	a⁴G-z⁴G°
3045.593	B	12	3.12	7.17	4½-4½	(34)
3043.356	B	9	3.12	7.18	3½-3½	
3040.603	B	12	3.12	7.18	2½-2½	
3043.770	B	(3)	3.12	7.17	5½-4½	
3043.143	B	(3)	3.12	7.18	4½-3½	
3041.224	B	4	3.12	7.18	3½-2½	
3048.864	B	5	3.12	7.17	4½-5½	
3045.808	B	5	3.12	7.17	3½-4½	
3042.733	B	4	3.12	7.18	2½-3½	
3022.749	B	10	3.12	7.30	5½-6½	a⁴G-z⁴H°
3018.454	B	8	3.12	7.31	4½-5½	(35)
3011.378	B	7	3.12	7.22	3½-4½	
3007.855	B	8	3.12	7.22	2½-3½	
3014.868	B	5	3.12	7.31	5½-5½	
3011.182	B	5	3.12	7.22	4½-4½	
3008.285	B	4	3.12	7.22	3½-3½	
5388.521	B	(3)	3.38	5.85	2½-3½	a⁴P-z⁴D°
5348.089	B	(1)	3.38	5.87	1½-2½	(36)
5317.095	B	(2)	3.37	5.89	½-1½	
5334.804	C	(1)	3.38	5.67	2½-2½	
5307.53	P		3.36	5.89	1½-1½	
5292.861	C	(1)	3.37	5.70	½- ½	
Mn I continued						
4147.532	B	(3)	3.36	6.33	2½-2½	a⁴P-x⁴P°
4131.430	B	(1)	3.36	8.35	1½-1½	(37)
4123.543	B	(1)	3.36	6.35	2½-1½	
*4110.903	B	(2)	3.36	6.37	1½- ½	
4155.525	B	(2)	3.36	6.33	1½-2½	
4137.257	B	(3)	3.37	6.35	½-1½	
3115.465	B	6	3.36	7.32	2½-3½	a⁴P-x⁴F°
3108.635	B	(1)	3.36	7.33	2½-2½	(38)
3107.774	B	(1)	3.36	7.33	1½-1½	
6491.712	B	15	3.75	5.85	3½-3½	b⁴D-z⁴D°
6440.974	B	8	3.76	5.67	2½-2½	(39)
6384.669	B	4	3.76	5.69	1½-1½	
6356.057	C	(2)	3.76	5.70	½- ½	
6413.92	C	(3)	3.75	5.67	3½-2½	
6382.169	B	(3)	3.76	5.69	2½-1½	
6349.748	C	(1)	3.76	5.70	1½- ½	
6519.371	B	(3)	3.76	5.85	2½-3½	
6443.492	B	(2)	3.76	5.67	1½-2½	
6391.214	C	(1)	3.76	5.69	½-1½	
4431.922	B	(1)	3.76	6.54	1½-1½	b⁴D-v⁶P°
4436.025	B	(2n)	3.76	6.54	½-1½	(40)
3462.748	C	(1)	3.76	7.32	2½-3½	b⁴D-x⁴F°
3455.04	C	(2)	3.76	7.33	1½-2½	(41)
5377.628	B	6	3.83	6.12	2½-1½	z⁴P°-e⁴S
5399.489	B	4	3.84	6.12	1½-1½	(42)
5413.687	B	2	3.84	6.12	½-1½	
4844.315	B	(2)	3.83	6.37	2½-2½	z⁴P°-e⁴P
4843.19	B	(1n)	3.84	6.38	1½-1½	(43)
4838.244	B	(1)	3.84	8.39	½- ½	
4825.593	B	(1)	3.83	6.38	2½-1½	
4826.898	B	(2)	3.84	6.39	1½- ½	
4862.054	B	(3)	3.84	6.37	1½-2½	
4854.604	B	(2)	3.84	8.38	½-1½	
3926.467	B	10	3.83	6.97	2½-2½	z⁴P°-1 (44)
3600.552	B	4	3.83	7.07	2½-3½	z⁴P°-e⁴D
3785.421	B	(1)	3.84	7.10	1½-2½	(45)
3774.845	B	(1)	3.83	7.10	2½-2½	
9243.29	A	150	4.31	5.65	4½-3½	a⁴F-z⁴D°
9172.09	A	100	4.33	5.67	3½-2½	(46)
9114.02	A	50	4.33	5.69	2½-1½	
9084.29	A	30	4.34	5.70	1½- ½	
*4110.903	B	(2)	4.31	7.32	4½-4½	a⁴F-x⁴F°
4122.757	C	(1)	4.33	7.32	3½-3½	(47)
4123.279	B	(1)	4.33	7.33	2½-2½	
4105.365	B	(3)	4.31	7.32	4½-3½	
4113.876	B	(2)	4.33	7.33	8½-1½	
4045.133	B	4*	4.31	7.36	4½-5½	a⁴F-y⁴G°
4048.999	C	(2)	4.33	7.37	3½-4½	(48)
4052.472	B	(2)	4.33	7.38	2½-3½	
4055.214	B	(1)	4.34	7.38	1½-2½	
8740.93	A	1000w	4.42	5.83	3½-4½	y⁶P°-e⁶D
8703.78	A	500w	4.41	5.83	2½-3½	(49)
8873.97	A	200w	4.41	5.83	1½-2½	
8737.32	A	300w	4.42	5.83	3½-3½	
8701.05	A	300w	4.41	5.83	2½-2½	
8672.06	A	300w	4.41	5.83	1½-1½	
8734.60	A	30w	4.42	5.83	3½-2½	
8699.13	A	100w	4.41	5.83	2½-1½	
8670.92	A	200w	4.41	5.83	1½- ½	
7326.51	A	400 l	4.42	6.10	3½-2½	y⁶P°-r⁶S
7302.89	A	300 l	4.41	6.10	2½-2½	(50)
7283.80	A	250 l	4.41	6.10	1½-2½	
6605.546	D	6n	4.42	6.28	3½-2½	y⁶P°-g⁸S
6586.343	B	(1)	4.41	6.28	2½-2½	(51)
6570.834	B	(1)	4.41	6.28	1½-2½	
4565.73	B	(1n)	4.41	7.11	2½-1½	y⁶P°-e⁴D (52)
8431.20	A	20Ns	5.11	6.58	2½-3½	e⁶S-u⁶P°
8409.88	A	15Ns	5.11	6.58	2½-2½	(53)
8395.87	A	10Ns	5.11	6.58	2½-1½	
7764.72	A	250nl	5.35	6.94	5½-4½	z⁶F°-r⁶D †
7733.24	A	150nl	5.36	6.96	4½-3½	(54)
7709.98	A	40Nl	5.37	6.97	3½-2½	
7708.52	A	10Nl	5.38	6.98	2½-1½	
7677.46	A	2Nl	5.39	7.00	1½- ½†	
7680.22	A	200	5.47	7.07	4½-3½	z⁴F°-e⁴D †
7712.42	A	100n	5.50	7.10	3½-2½	(55)
7734.43	A	50n	5.52	7.11	2½-1½	
7755.15	A	20Nl	5.53	7.12	1½- ½	
8929.72	A	60n	5.55	6.94	3½-4½	x⁶P°-r⁸D †
8926.08	A	15n	5.57	6.96	2½-3½	(58)
8901.0	A	2p†	5.59	6.97	1½-2½	
9439.58	A	30n	5.85	6.96	3½-3½	z⁴D°-r⁶D †
9478.57	A	4n	5.87	6.97	2½-2½	(57)
9535.72	A	5n	5.89	6.98	1½-1½	
9338.47	A	40n	5.65	6.97	3½-2½	z⁴D°-1
9502.12	A	8n	5.87	6.97	2½-2½	(58)
9633.02	A	4p†	5.69	6.97	1½-2½	
8654.83	A	40n	5.65	7.07	3½-3½	z⁴D°-e⁴D †
8659.38	A	10n	5.67	7.10	2½-2½	(59)

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
Mn I continued						
9608.56	A	100n	5.79	7.07	2½-3½	$y^4P^o-e^4D$ †
9876.50	A	40	5.82	7.10	1½-3½	(60)
9684.9	A	15	5.84	7.11	½-1½	
Strongest Unclassified Lines of Mn I						
9686.3	A	15				
8380.77	A	40				
8212.43	A	40nl				
7942.91	A	25				
7247.82	A	15				
5818.844	B	(5)				
5780.189	B	(6)				
5738.286	B	(6)				
5551.985	B	(3)				
4626.544	B	4	III			
4605.363	B	4	V			
4411.878	B	3	IV			
4045.206	B	4*	V			
4026.435	B	4	V			
3924.075	B	3	IV			
3801.907	B	4	V			
3731.932	B	5	V			
3718.930	B	5	V			
3693.667	B	6	V			
3676.959	B	4	V			
3660.404	B	5	V			
3420.795	B	4	V			
3345.352	B	4	IV			
3320.693	B	4	IV			
3303.278	B	3	V			
3298.224	B	5	IV			
3270.351	B	3	V			
3288.722	B	3	V			
3267.794	B	4	V			
3237.414	B	20n	IV			
3235.003	B	10n (15n	IV IV			
3233.968	B	15n	IV			
3142.670	B	4	V			
3101.557	B	5	III†			
3097.063	B	8	IV			

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
Mn II I P 15.6 Anal C Liet A Aug 1941						
3438.978	A	20	1.17	4.76	2-3	$a^5S-z^7P^o$
3460.039	A	8	1.17	4.74	2-2	(1)
4083.87	P		1.77	4.79	4-4	$a^5D-z^7P^o$
4174.31	P		1.80	4.76	3-3	(2)
4238.79	P		1.82	4.74	2-2	
4128.14	B	(2†)	1.77	4.76	4-3	
4205.37	P		1.80	4.74	3-2	
4128.87	P		1.80	4.79	3-4	
4207.23	P		1.82	4.76	2-3	
4260.47	P		1.84	4.74	1-2	
3441.983	A	100	1.77	5.35	4-3	$a^5D-z^5P^o$
3460.312	A	75	1.80	5.37	3-2	(3)
3474.124	A	40	1.82	5.38	2-1	
Mn II continued						
3474.037	A	50	1.80	5.35	3-3	$a^5D-z^5P^o$
3482.905	A	40	1.82	5.37	2-2	cont
3488.676	A	40	1.84	5.38	1-1	
3498.814	A	20	1.82	5.35	2-3	
3497.536	A	25	1.84	5.37	1-2	
3495.831	A	40	1.85	5.38	0-1	
7415.78	P		3.89	5.35	3-3	$a^5P-z^5P^o$
7369.73	P		3.69	5.37	2-2	(4)
7347.72	P		3.70	5.38	1-1	
7353.52	P		3.69	5.37	3-2	
7330.54	P		3.69	5.38	2-1	
7432.27	P		3.69	5.35	2-3	
7387.10	P		3.70	5.37	1-2	
4755.728	A	0n	5.37	7.97	5-6	$a^5F-z^5G^o$
4764.7	P		5.37	7.96	4-5	(5)
4738.29	B	—	5.36	7.96	3-4	
4730.361	B	—	5.35	7.96	2-3	
4727.9	P		5.35	7.96	1-2	
4343.987	A	2N	5.37	8.21	5-5	$a^5F-z^5F^o$
4326.756	B	(3)	5.37	8.23	4-4	(6)
4292.246	A	0N	5.36	8.23	3-3	
4283.772	A	0	5.35	8.23	2-2	
4284.425	A	0	5.35	8.23	1-1	
4325.1	P		5.37	8.23	5-4	
4345.6	P		5.37	8.21	4-5	
4300.197	B	(1)	5.36	8.23	3-4	
4206.375	A	0N	5.37	8.31	5-4	$a^5F-z^5D^o$
4259.203	A	0n	5.37	8.27	4-3	(7)
4253.02	C	(2)	5.36	8.26	3-2	
4244.26	C	(1)	5.35	8.26	2-1	
3685.049	A	-1N	5.37	8.72	5-5	$a^5F-y^5F^o$
3708.06	C	(1)	5.37	8.70	4-4	(8)
3709.88	C	(1)	5.36	8.68	3-3	
3717.53	C	(1)	5.35	8.67	2-2	
3724.81	C	(1)	5.35	8.66	1-1	
3706.91	C	(1)	5.37	8.70	5-4	
3729.49	C	(1)	5.37	8.68	4-3	
3725.29	C	(1)	5.36	8.87	3-2	
3686.20	C	(1)	5.37	8.72	4-5	
*3509.971	A	0	5.37	8.89	5-4	$a^5F-y^5D^o$
3482.06	C	(1)	5.37	8.92	4-3	(9)
3457.809	A	0n	5.36	8.93	3-2	
3449.5	P		5.35	8.93	2-1	
3446.0	P		5.35	8.93	1-0	
3029.041	A	50	5.35	9.43	3-2	$z^5P^o-e^5S$
3039.551	A	40	5.37	9.43	2-2	(10)
3046.266	A	30	5.38	9.43	1-2	
5302.320	A	30	9.82	12.15	5-	$e^7D-z^7F^o$
5299.278	A	25	9.82	12.15	4-	(11)
5296.968	A	20	9.82	12.15	3-	
5295.292	A	15	9.82	12.15	2-	
5294.216	A	10	9.82	12.15	1-	
3466.336	A	9	9.82	13.38	5-	$e^7D-y^7F^o$
3465.037	A	8	9.82	13.38	4-	(12)
3464.043	A	7	9.82	13.38	3-	
3463.330	A	6	9.82	13.38	2-	
3462.878	A	5	9.82	13.38	1-	
Mn II continued						
6122.438	A	40	10.14	12.16	4-5	$e^5D-x^5P^o$
6125.855	A	25	10.14	12.16	3-4	(13)
6128.725	A	20	10.14	12.16	2-3	
6130.794	A	15	10.14	12.16	1-2	
6131.917	A	15	10.14	12.16	0-1	
6122.799	A	8	10.14	12.16	4-4	
6126.210	A	10	10.14	12.16	3-3	
6129.022	A	10	10.14	12.16	2-2	
6131.005	A	5	10.14	12.16	1-1	
6123.164	A	-1	10.14	12.16	4-3	
6126.516	A	0	10.14	12.16	3-2	
6129.255	A	0	10.14	12.16	2-1	
3800.240	A	2	10.14	13.39	4-5	$e^5D-v^5P^o$
3801.633	A	3	10.14	13.39	3-4	(14)
3802.958	A	0	10.14	13.39	2-3	
3803.881	A	0	10.14	13.39	1-2	
3804.476	A	0	10.14	13.39	0-1	
3134.819	A	1	10.14	14.08	4-5	$e^5D-r^5F^o$
3135.507	A	0	10.14	14.08	3-4	(15)
3136.315	A	0	10.14	14.08	2-3	
6105.381	A	5	10.31	12.33	4-5	$y^7P^o-f^7D$
6050.446	A	3	10.29	12.33	3-4	(16)
6008.295	A	0	10.28	12.33	2-3	
6107.293	A	1	10.31	12.33	4-4	
6051.860	A	1	10.29	12.33	3-3	
6009.298	A	1	10.28	12.33	2-2	
6108.8	P		10.31	12.33	4-3	
6052.892	A	0	10.29	12.33	3-2	
6009.962	A	1	10.28	12.33	2-1	
4530.034	A	5	10.62	13.35	4-3	$x^7P^o-g^7S$
4510.210	A	3	10.61	13.35	3-3	(17)
4496.989	A	2	10.60	13.35	2-3	
4639.150	A	3	10.73	13.39	3-2	$w^5P^o-g^5S$
4647.585	A	2	10.73	13.39	2-2	(18)
4652.816	A	1	10.74	13.39	1-2	
6446.281	A	50N	12.15	14.06	6-	$z^7F^o-f^7G$ (19)
6463.637	A	12	12.16	14.06	5-6	$x^5P^o-f^5G$
6463.195	A	10	12.16	14.06	4-5	(20)
6462.799	A	7	12.16	14.06	3-4	
6462.454	A	5	12.16	14.06	2-3	
6462.210	A	3	12.16	14.06	1-2	
3050.661	A	25	?	?	2-2	$^3P-^3P^o$
3043.132	A	6	?	?	1-1	(21)
3034.810	A	6	?	?	2-1	
3033.591	A	4	?	?	1-0	
3059.064	A	10	?	?	1-2	
3049.027	A	8	?	?	0-1	

Measures inadequate for preparation of list of strongest unclassified lines of Mn II.

Fe I I P 7.858 Anal A List A Feb 1943

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5166.286	J	4	0.00	2.39	4-5	$a^5D-z^7D^o$ (1)
5221.43	P		0.05	2.41	3-4	
5247.052	V	1	0.09	2.44	2-3	
5254.956	V	1	0.11	2.46	1-2	
5250.312	V	1	0.12	2.47	0-1	
5110.414	B	10	0.00	2.41	4-4	
5168.901	B	4	0.05	2.44	3-3	
5204.582	J	2	0.09	2.46	2-2	
5225.533	V	1	0.11	2.47	1-1	
*5060.079	T	(1)	0.00	2.44	4-3	
5127.68	P	⊙	0.05	2.46	3-2	
5175.71	P		0.09	2.46	2-1	
4375.932	B	9	0.00	2.82	4-5	$a^5D-z^7F^o$ (2)
4427.312	B	10	0.05	2.84	3-4	
4461.654	B	8	0.09	2.85	2-3	
4482.171	J	4	0.11	2.86	1-2	
4489.741	B	3	0.12	2.87	0-1	
4347.239	V	(1)	0.00	2.84	4-4	
4405.02	P	⊙	0.05	2.85	3-3	
4445.48	U	(1)	0.09	2.86	2-2	
4471.68	P	(1)	0.11	2.87	1-1	
m4325.74	P	Fe	0.00	2.85	4-3	
4389.244	J	2	0.05	2.86	3-2	
4435.151	J	2	0.09	2.87	2-1	
m4466.57	P	Fe	0.11	2.87	1-0	
4216.186	B	8	0.00	2.93	4-4	$a^5D-z^7P^o$ (3)
4206.702	J	3	0.05	2.99	3-3	
4199.97	W	1	0.09	3.03	2-2	R
4134.343	V	(1)	0.00	2.99	4-3	
4149.76	P	(1)	0.05	3.03	3-2	
*4291.466	I	4	0.05	2.93	3-4	
4258.320	J	2	0.09	2.99	2-3	
3859.913	B	300R	0.00	3.20	4-4	$a^5D-z^5D^o$ (4)
3886.284	B	40R	0.05	3.23	3-3	
3899.709	B	30R	0.09	3.25	2-2	
3906.482	B	8	0.11	3.27	1-1	
3824.444	B	50r	0.00	3.23	4-3	
3856.373	B	50r	0.05	3.25	3-2	
3878.575	B	100r	0.09	3.27	2-1	
3895.658	B	25r	0.11	3.28	1-0	
3922.914	B	25R	0.05	3.20	3-4	
3930.299	B	25R	0.09	3.23	2-3	
3927.922	B	30R	0.11	3.25	1-2	
3920.260	B	20r	0.12	3.27	0-1	
3719.935	B	250R	0.00	3.32	4-5	$a^5D-z^5F^o$ (5)
3737.133	B	150R	0.05	3.35	3-4	
3745.561	J	100R	0.09	3.38	2-3	
3748.264	B	60R	0.11	3.40	1-2	
3745.901	J	40r	0.12	3.42	0-1	
3679.915	B	40r	0.00	3.35	4-4	
3705.567	B	100r	0.05	3.38	3-3	
3722.564	B	50r	0.09	3.40	2-2	
3733.319	B	40r	0.11	3.42	1-1	
3649.304	J	5	0.00	3.38	4-3	
3683.054	G	10	0.05	3.40	3-2	
3707.828	V	20	0.09	3.42	2-1	
3440.610	J	150R	0.00	3.59	4-3	$a^5D-z^5P^o$ (6)
3440.989	J	75R	0.05	3.64	3-2	
3443.878	A	50r	0.09	3.67	2-1	
3490.575	A	100r	0.05	3.59	3-3	
3475.450	G	70r	0.09	3.64	2-2	
3465.863	A	60r	0.11	3.67	1-1	
3526.039	J	20	0.09	3.59	2-3	
3497.843	A	40	0.11	3.64	1-2	
3476.704	A	40	0.12	3.67	0-1	
3193.214	V	10	0.00	3.86	4-4	$a^5D-z^3F^o$ (7)
3184.896	A	7	0.05	3.93	3-3	R
3180.756	G	5	0.09	3.97	2-2	
3143.242	V	2	0.00	3.93	4-3	
3151.867	V	(1)	0.05	3.97	3-2	
3236.223	A	8	0.05	3.86	3-4	
3214.396	G	8	0.09	3.93	2-3	
3191.659	A	7	0.00	3.87	4-3	$a^5D-z^3D^o$ (8)
3197.00	V	(2)	0.05	3.91	3-2	
3200.790	V	2	0.09	3.94	2-1	
3234.614	G	7	0.05	3.87	3-3	
3226.727	V	2	0.09	3.91	2-2	
m3219.77	P	Fe	0.11	3.94	1-1	
3265.046	G	8	0.09	3.87	2-3	
3246.005	G	8	0.11	3.91	1-2	
3229.123	G	4	0.12	3.94	0-1	
3020.643	V	200R	0.00	4.09	4-4	$a^5D-y^5D^o$ (9)
3021.074	G	150R	0.05	4.14	3-3	
3020.495	V	100R	0.09	4.17	2-2	
3017.628	G	15r	0.11	4.20	1-1	
2983.574	G	125R	0.00	4.14	4-3	
2994.427	G	100R*	0.05	4.17	3-2	
3000.950	G	100R	0.09	4.20	2-1	
3008.139	G	80R	0.11	4.21	1-0	
3059.086	A	100R	0.05	4.09	3-4	
3047.605	A	100R	0.09	4.14	2-3	
3037.388	A	80R	0.11	4.17	1-2	
3025.843	K	50R	0.12	4.20	0-1	
2966.901	G	125R	0.00	4.18	4-5	$a^5D-y^5F^o$ † (10)
2973.236	V	80R	0.05	4.20	3-4	
2973.137	V	60R	0.09	4.24	2-3	
*2970.106	G	40R	0.11	4.28	1-2	
2965.255	A	20	0.12	4.28	0-1	
2953.940	A	50R	0.09	4.28	2-2	
2957.365	A	30R	0.11	4.28	1-1	
2981.446	A	20r	0.05	4.19	3-2	$a^5D-z^3P^o$ (11)
*2970.106	G	40R	0.09	4.24	2-1	
2969.364	V	5	0.11	4.27	1-0	
3007.284	V	12r	0.09	4.19	2-2	
2986.456	G	3	0.11	4.24	1-1	
3024.033	C	15r	0.11	4.19	1-2	
2994.50	V	100R*	0.12	4.24	0-1	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
8047.60	O	15	0.88	2.39	5-5	$a^5F-z^7D^o$ (12)
8204.10	P	⊙	0.91	2.41	4-4	
8310.98	P		0.95	2.44	3-3	
8382.23	P	⊙	0.99	2.46	2-2	
8425.89	P	⊙	1.01	2.47	1-1	
7912.868	E	6	0.86	2.41	5-4	
8075.13	O	4	0.91	2.44	4-3	
8204.93	P	⊙	0.95	2.46	3-2	
8307.61	P	⊙	0.99	2.47	2-1	
8349.05	P	⊙	0.91	2.39	4-5	
8447.63	P	⊙	0.95	2.41	3-4	
6358.692	I	3	0.86	2.80	5-6	$a^5F-z^7F^o$ (13)
m6462.72	P	Fe	0.91	2.82	4-5	
6547.58	P		0.95	2.84	3-4	
6609.68	P	⊙	0.99	2.85	2-3	
6648.08	P	⊙	1.01	2.86	1-2	
6280.625	I	2	0.88	2.82	5-5	
6400.335	V	(2)	0.91	2.84	4-4	
6498.950	V	5	0.95	2.85	3-3	
6574.238	V	3	0.99	2.86	2-2	
6625.04	V	1	1.01	2.87	1-1	
6221.661	U	(-)	0.86	2.84	5-4	
6353.84	P	⊙	0.91	2.85	4-3	
6464.87	P		0.95	2.86	3-2	
6551.68	P	⊙	0.99	2.87	2-1	
6613.83	P	1	1.01	2.87	1-0	
5956.702	J	(3)	0.88	2.93	5-4	$a^5F-z^7P^o$ (14)
*5949.35	V	(2)	0.91	2.99	4-3	
*5958.23	P	(2)	0.95	3.03	3-2	
6120.25	P	⊙	0.91	2.93	4-4	
5269.541	I	60	0.86	3.20	5-4	$a^5F-z^5D^o$ (15)
5328.042	I	50	0.91	3.23	4-3	
5371.493	B	50	0.95	3.25	3-2	
5405.778	B	40	0.99	3.27	2-1	
5434.527	B	30	1.01	3.28	1-0	
5397.131	B	40	0.91	3.20	4-4	
5429.699	B	40	0.95	3.23	3-3	
5446.920	B	40	0.99	3.25	2-2	
5455.613	B	40	1.01	3.27	1-1	
5501.469	B	12	0.95	3.20	3-4	
5506.782	B	18	0.99	3.23	2-3	
5497.519	B	15	1.01	3.25	1-2	
5012.071	B	12	0.86	3.32	5-5	$a^5F-z^5F^o$ (16)
5051.636	B	10	0.91	3.35	4-4	
5083.342	B	7	0.95	3.38	3-3	
5107.452	J	6	0.99	3.40	2-2	
5123.733	B	8	1.01	3.42	1-1	
4939.690	B	4	0.86	3.35	5-4	
4994.133	B	8	0.91	3.38	4-3	
5041.074	J	7	0.95	3.40	3-2	
5079.742	J	4	0.99	3.42	2-1	
5127.363	B	5	0.91	3.32	4-5	
5142.932	J	6	0.95	3.35	3-4	
5150.843	B	8	0.99	3.38	2-3	
5151.915	J	4	1.01	3.40	1-2	
m4611.35	P	Fe	0.91	3.59	4-3	$a^5F-z^5P^o$ (17)
4598.33	P	⊙	0.95	3.84	3-2	
4597.08	P	⊙	0.99	3.87	2-1	
4687.30	P	⊙	0.95	3.59	3-3	
4653.49	P	⊙	0.99	3.64	2-2	
4633.05	P		1.01	3.87	1-1	
4744.84	P	⊙	0.99	3.59	2-3	
4690.38	P	⊙	1.01	3.84	1-2	
4100.745	J	3	0.88	3.88	5-4	$a^5F-z^3F^o$ (18)
4092.512	V	(1)	0.91	3.93	4-3	
4096.21	P	⊙	0.95	3.97	3-2	
4177.597	J	4	0.91	3.86	4-4	
4152.172	J	4	0.95	3.93	3-3	
4139.933	J	2	0.99	3.97	2-2	
*4239.847	J	2	0.95	3.86	3-4	
4197.10	P	⊙	0.99	3.93	2-3	
4189.09	P	⊙	1.01	3.97	1-2	
4174.917	J	5	0.91	3.87	4-3	$a^5F-z^3D^o$ (19)
4172.749	J	4	0.95	3.91	3-2	
4173.938	J	2	0.99	3.94	2-1	
4237.085	M	(2)	0.95	3.87	3-3	
4218.12	P		0.99	3.91	2-2	
4203.570	V	(1)	1.01	3.94	1-1	
4283.87	P	⊙?	0.99	3.87	2-3	
4248.40	P	⊙	1.01	3.91	1-2	
3820.428	I	250R	0.86	4.09	5-4	$a^5F-y^5D^o$ (20)
3825.884	B	200R	0.91	4.14	4-3	
3834.225	B	100r	0.95	4.17	3-2	
3840.439	B	80r	0.99	4.20	2-1	
3849.989	B	40	1.01	4.21	1-0	
3887.051	B	15	0.91	4.09	4-4	
3878.021	B	60	0.95	4.14	3-3	
3872.504	B	60	0.99	4.17	2-2	
3885.528	B	30	1.01	4.20	1-1	
3940.882	B	5	0.95	4.09	3-4	
3917.185	B	8	0.99	4.14	2-3	
3898.012	K	10	1.01	4.17	1-2	
3734.867	B	300r	0.88	4.18	5-5	$a^5F-y^5F^o$ (21)
3749.487	B	200R	0.91	4.20	4-4	
3758.235	B	150R	0.95	4.24	3-3	
3783.790	B	100r	0.99	4.28	2-2	
3767.194	B	80r	1.01	4.28	1-1	
3887.458	B	40r	0.88	4.20	5-4	
3709.246	G	75r	0.91	4.24	4-3	
3727.821	B	50r	0.95	4.28	3-2	
3743.364	G	20	0.99	4.28	2-1	
3798.513	B	40	0.91	4.18	4-5	
3799.549	B	50	0.95	4.20	3-4	
3795.004	B	60	0.99	4.24	2-3	
3787.883	B	50	1.01	4.28	1-2	
3812.964	G	40	0.95	4.19	3-2	$a^5F-z^3P^o$ (22)
3790.095	B	12	0.99	4.24	2-1	
3786.678	J	8	1.01	4.27	1-0	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3850.820	B	12	0.99	4.19	2-2	$a^5F-z^3P^o$ cont
3814.526	J	5	1.01	4.24	1-1	
3876.043	J	4	1.01	4.19	1-2	
3581.195//	B	250R	0.86	4.30	5-8	$a^5F-z^5G^o$ (23)
3647.844	B	100R	0.91	4.29	4-5	
3631.464	B	125R	0.95	4.35	3-4	
3618.769	B	125R	0.99	4.40	2-3	
3608.861	B	100r	1.01	4.43	1-2	
3589.107	B	8	0.86	4.29	5-5	
3585.708	J	20	0.91	4.35	4-4	
3585.320	B	30	0.95	4.40	3-3	
3586.985	G	30	0.99	4.43	2-2	
3528.94	P		0.88	4.35	5-4	
3540.709	J	3	0.91	4.40	4-3	
3554.122	J	4	0.95	4.43	3-2	
3513.820	B	30	0.86	4.37	5-5	$a^5F-z^3G^o$ (24)
3521.264	B	25	0.91	4.42	4-4	
3526.167	J	15	0.95	4.45	3-3	
3466.501	V	3	0.88	4.42	5-4	
3483.008	G	3	0.91	4.45	4-3	
3570.100	G	100R	0.91	4.37	4-5	
3565.381	B	60r	0.95	4.42	3-4	
3558.518	B	30	0.99	4.45	2-3	
3359.496	V	2	0.86	4.53	5-4	$a^5F-y^3F^o$ (25)
3356.332	V	1	0.91	4.59	4-3	
3355.517	V	(1)	0.95	4.63	3-2	
3410.905	V	(1)	0.91	4.53	4-4	
3396.386	V	(1)	0.95	4.59	3-3	
3384.80	P	⊙?	0.99	4.63	2-2	
3452.273	G	10	0.95	4.53	3-4	
*3426.383	J	5	0.99	4.59	2-3	
*3404.301	V	3	1.01	4.63	1-2	
3401.521	A	6	0.91	4.54	4-3	$a^5F-y^5P^o$ (26)
3398.978	A	4	0.95	4.59	3-2	
3397.642	V	2	0.99	4.62	2-1	
3442.672	J	3	0.95	4.54	3-3	
3437.002	J	2	0.99	4.59	2-2	
3417.273	J	(1gn)	1.01	4.62	1-1	
3473.497	V	(1)	0.99	4.54	2-3	
3446.947	U	(1)	1.01	4.59	1-2	
3245.984	V	(2)	0.91	4.71	4-3	$a^5F-y^3D^o$ (27)
3230.09	P	⊙	0.95	4.77	3-2	
3223.853	V	(1)	0.99	4.81	2-1	
3283.430	V	(1)	0.95	4.71	3-3	
*3257.244	V	2	0.99	4.77	2-2	
3241.50	P	(1)	1.01	4.81	1-1	
3311.451	V	(1)	0.99	4.71	2-3	
3275.24	P		1.01	4.77	1-2	
3057.448	A	40R	0.86	4.89	5-4	$a^5F-x^5D^o$ (28)
3067.244	A	30r	0.91	4.93	4-3	
3075.721	A	25r	0.95	4.97	3-2	
3083.742	A	20	0.99	4.99	2-1	
3091.578	A	20	1.01	5.00	1-0	
3099.968	V	15	0.91	4.89	4-4	
3100.888	G	20	0.95	4.93	3-3	
3100.304	G	20	0.99	4.97	2-2	
3099.898	V	20	1.01	4.99	1-1	
3134.111	A	10	0.95	4.89	3-4	
*3125.653	C	15	0.99	4.93	2-3	
*3116.833§	A	12	1.01	4.97	1-2	
*2984.785§	V	10	0.88	4.99	5-4	$a^5F-y^7P^o$ (29)
3045.077	G	5	0.91	4.96	4-3	
3092.785	V	2	0.95	4.94	3-2	
3025.283	V	3	0.91	4.99	4-4	
3078.014	G	4	0.95	4.96	3-3	
3117.63	W	1	0.99	4.94	2-2	
3057.80	P	⊙	0.95	4.99	3-4	
3102.64	P	⊙	0.99	4.96	2-3	
m3134.15	P	Fe	1.01	4.94	1-2	
2999.512	A	30R	0.88	4.97	5-5	$a^5F-x^5P^o$ (30)
3009.570	C	25r	0.91	5.01	4-4	
3018.983	G	15r	0.95	5.04	3-3	
3028.462	G	15	0.99	5.08	2-2	
3031.838	G	15	1.01	5.08	1-1	
2969.474	G	10	0.86	5.01	5-4	
2987.292	A	10	0.91	5.04	4-3	
3003.031	C	10	0.95	5.06	3-2	
3018.188	G	12	0.99	5.08	2-1	
3040.428	C	15	0.91	4.97	4-5	
3041.745	V	15	0.95	5.01	3-4	
3042.868	G	15	0.99	5.04	2-3	
3042.020	G	15	1.01	5.08	1-2	
3014.176	V	3	0.95	5.05	3-2	$a^5F-z^5G^o$ (31)
3037.782	V	2	0.99	5.05	2-2	
*3053.443	U	(2)	1.01	5.05	1-2	
8916.28	F	1	1.80	2.99	2-3	$a^3F-z^7P^o$ (32)
7180.020	V	1	1.48	3.20	4-4	$a^3F-z^5D^o$ (33)
7494.72	P	⊙	1.55	3.20	3-4	
8710.31	V	2	1.48	3.32	4-5	$a^3F-z^5F^o$ (34)
6844.67	P	1	1.55	3.35	3-4	
6929.98	P		1.60	3.38	2-3	
6581.22	V	2	1.48	3.35	4-4	
6739.54	V	1	1.55	3.38	3-3	
6851.64	P	1	1.80	3.40	2-2	
6483.95	P	⊙	1.48	3.38	4-3	
6885.43	P	⊙	1.55	3.40	3-2	
6801.87	P	⊙	1.80	3.42	2-1	
5853.18	V	(1)	1.48	3.59	4-3	$a^3F-z^5P^o$ (35)
5171.599	B	20	1.48	3.88	4-4	$a^3F-z^3F^o$ (38)
5194.943	I	10	1.55	3.93	3-3	
5218.278	B	10	1.60	3.97	2-2	
5041.759	B	10	1.48	3.93	4-3	
5107.845	J	8	1.55	3.97	3-2	
5332.903	J	4	1.55	3.88	3-4	
5307.385	B	2	1.60	3.93	2-3	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Fe I continued						
5167.491	B	40	1.48	3.87	4-3	$a^3F-z^3D^o$ (37)
5227.192	B	40	1.55	3.91	3-2	
5270.360	B	30	1.60	3.94	2-1	
5328.534	B	15	1.55	3.87	3-3	
5341.026	B	20	1.60	3.91	2-2	
m5446.87	P	Fe	1.60	3.87	2-3	
4733.596	B	4	1.48	4.09	4-4	$a^3F-y^5D^o$ (38)
•4772.817	B	3	1.55	4.14	3-3	
4798.736	V	(1)	1.60	4.17	2-2	
4643.20	P	⊙	1.48	4.14	4-3	
4868.38	P	⊙	1.55	4.09	3-4	
4867.53	P	⊙	1.60	4.14	2-3	
4602.944	B	9	1.48	4.16	4-5	$a^3F-y^5F^o$ (39)
4654.501	J	5	1.55	4.20	3-4	
4680.297	J	(2)	1.60	4.24	2-3	
4531.152	B	8	1.48	4.20	4-4	
4592.655	B	5	1.55	4.24	3-3	
4632.915	J	2	1.60	4.26	2-2	
4472.52	P	⊙	1.48	4.24	4-3	
4547.022	J	(2)	1.55	4.26	3-2	
4602.005	J	(2)	1.60	4.28	2-1	
4674.65	P	⊙	1.55	4.19	3-2	$a^3F-z^3P^o$ (40)
4672.83	P	⊙	1.60	4.24	2-1	
4765.485	V	(1)	1.60	4.19	2-2	
4383.547	B	45r	1.48	4.29	4-5	$a^3F-z^5G^o$ (41)
4404.752	B	30	1.55	4.35	3-4	
4415.125	B	20	1.60	4.40	2-3	
4294.128	B	15	1.48	4.35	4-4	
4337.049	B	10	1.55	4.40	3-3	
4367.906	J	2	1.60	4.43	2-2	
4229.760	J	(1)	1.48	4.40	4-3	
•4291.466	I	4	1.55	4.43	3-2	
4271.764	B	35	1.48	4.37	4-5	$a^3F-z^3G^o$ (42)
4307.906	B	35	1.55	4.42	3-4	
4325.765	B	35	1.60	4.45	2-3	
4202.031	B	30	1.48	4.42	4-4	
4250.790	B	25	1.55	4.45	3-3	
4147.673	B	10	1.48	4.45	4-3	
4045.815	B	60r	1.48	4.53	4-4	$a^3F-y^3F^o$ (43)
4063.597	H	45	1.55	4.59	3-3	
4071.740	H	40	1.60	4.63	2-2	
3969.261	B	30	1.48	4.59	4-3	
4005.246	B	25	1.55	4.63	3-2	
4143.871	B	30	1.55	4.53	3-4	
4132.060	B	25	1.60	4.59	2-3	
4032.636	V	4	1.48	4.54	4-3	$a^3F-y^5P^o$ (44)
4064.46	W	(2)	1.55	4.59	3-2	
4090.34	P	⊙	1.60	4.62	2-1	
•4130.035	U	(1)	1.55	4.54	3-3	
m4132.94	P	Fe	1.60	4.59	2-2	
4200.78	P	⊙	1.60	4.54	2-3	
3815.842	B	100r	1.48	4.71	4-3	$a^3F-y^3D^o$ (45)
3827.825	B	75r	1.55	4.77	3-2	
3841.051	B	80r	1.60	4.81	2-1	
3902.948	B	20	1.55	4.71	3-3	
3888.517	B	20	1.60	4.77	2-2	
3966.066	B	10	1.60	4.71	2-3	
3615.66	W	(1)	1.48	4.89	4-4	$a^3F-x^5D^o$ (46)
3647.427	J	3	1.55	4.93	3-3	
3666.944	U	(1)	1.60	4.97	2-2	
3571.228	V	2	1.48	4.93	4-3	
•3612.940	J	1	1.55	4.97	3-2	
3643.82	P	(1)	1.60	4.99	2-1	
3693.78	P	⊙	1.55	4.89	3-4	
•3702.500	J	1	1.60	4.93	2-3	
3514.48	P	⊙	1.48	4.99	4-4	$a^3F-y^7P^o$ (47)
3541.22	P	⊙	1.48	4.96	4-3	
3636.50	P	⊙	1.55	4.94	3-2	
3588.23	P	⊙	1.55	4.99	3-4	
3670.23	P	⊙	1.60	4.96	2-3	
•3534.914	U	(1)	1.48	4.97	4-5	$a^3F-x^5F^o$ (48)
3493.29	W	(1)	1.48	5.01	4-4	
•3534.914	U	(1)	1.55	5.04	3-3	
3564.11	W	(1)	1.60	5.06	2-2	
3463.305	V	2	1.48	5.04	4-3	
3513.065	U	(1)	1.55	5.06	3-2	
3549.868	J	4	1.60	5.08	2-1	
3271.693	V	(2)	1.48	5.25	4-3	$a^3F-x^5P^o$ (49)
3299.511	V	(1)	1.55	5.29	3-2	
3335.513	V	(1)	1.55	5.25	3-3	
3231.599	V	(1)	1.48	5.30	4-5	$a^3F-y^5G^o$ (50)
3281.83	P		1.55	5.31	3-4	
3313.723	V	(1)	1.60	5.33	2-3	
3223.273	V	(1)	1.48	5.31	4-5	$a^3F-z^5H^o$ (51)
3272.60	P	⊙	1.55	5.32	3-4	
3293.146	V	(1)	1.60	5.35	2-3	
•3171.353	V	5	1.48	5.37	4-4	$a^3F-w^5D^o$ (52)
3187.68	P		1.55	5.42	3-3	
3202.68	P	⊙	1.60	5.45	2-2	
3129.334	V	5	1.48	5.42	4-3	
3161.370	V	4	1.55	5.45	3-2	
•3179.479§	U	(1)	1.60	5.48	2-1	
3068.927	8	(-)	1.48	5.50	4-3	$a^3F-v^5D^o$ (53)
3138.40	P	⊙	1.55	5.48	3-4	
3081.83	P	⊙	1.48	5.48	4-4	
3125.03	P	⊙	1.55	5.50	3-3	
3154.11	P	⊙	1.60	5.51	2-2	
3128.901	U	1	1.55	5.49	3-2	$a^3F-y^5S^o$ (54)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Fe I oontinued						
3007.146	V	8	1.48	5.58	4-3	$a^3F-x^3D^o$ (55)
3055.263	C	12	1.55	5.59	3-2	
3068.175	G	8	1.60	5.62	2-1	
3060.984	G	4	1.55	5.58	3-3	
3093.806	V	3	1.60	5.59	2-2	
3000.452	G	8	1.48	5.59	4-5	$a^3F-y^3G^o$ (56)
3041.639	V	10	1.55	5.61	3-4	
3067.123	V	8	1.60	5.62	2-3	
2988.468	G	2	1.48	5.61	4-4	
3029.237	V	3	1.55	5.62	3-3	
2976.50	P	(1)	1.48	5.62	4-3	
2962.11	W	(2)	1.48	5.64	4-5	$a^3F-x^5G^o$ (57)
3004.62	W	(1)	1.55	5.66	3-4	
3034.51	W	(2n)	1.60	5.67	2-3?	
11973.01	D	8	2.17	3.20	3-4	$a^5P-z^5D^o$ (58)
11882.80	D	7	2.19	3.23	2-3	
11884.12	D	3	2.21	3.25	1-2	
11638.25	D	7	2.17	3.23	3-3	
11607.57	D	12	2.19	3.25	2-2	
11689.98	D	8	2.21	3.27	1-1	
11374.02	D	3	2.17	3.25	3-2	
11422.30	D	6	2.19	3.27	2-1	
11593.55	D	5	2.21	3.28	1-0	
10395.75	F	8	2.17	3.35	3-4	$a^5P-z^5F^o$ (59)
10340.77	F	4	2.19	3.38	2-3	
10379.01	P	⊙	2.21	3.40	1-2	
10155.18	P	⊙	2.17	3.38	3-3	
10167.4	F	1	2.19	3.40	2-2	
10265.23	P	⊙	2.21	3.42	1-1	
9987.88	P		2.17	3.40	3-2	
10058.28	P	⊙	2.19	3.42	2-1	
8688.633	E	1500	2.17	3.59	3-3	$a^5P-z^5P^o$ (60)
8514.075	E	150	2.19	3.64	2-2	
8468.413	E	300	2.21	3.67	1-1	
8387.781	E	1200	2.17	3.64	3-2	
8327.063	E	1200	2.19	3.67	2-1	
8824.227	E	250	2.19	3.59	2-3	
8661.908	E	600	2.21	3.64	1-2	
7267.00	P	⊙	2.17	3.86	3-4	$a^5P-z^3F^o$ (61)
7101.28	P	⊙	2.19	3.93	2-3	
7037.04	P	⊙?	2.21	3.97	1-2	
6430.851	B	300	2.17	4.09	3-4	$a^5P-y^5D^o$ (62)
6335.335	B	10	2.19	4.14	2-3	
6297.800	I	5	2.21	4.17	1-2	
6265.140	B	6	2.17	4.14	3-3	
6219.290	I	6	2.19	4.17	2-2	
6213.438	I	5	2.21	4.20	1-1	
6151.624	L	(2)	2.17	4.17	3-2	
6136.999	J	(2)	2.19	4.20	2-1	
6173.343	J	3	2.21	4.21	1-0	
6062.89	V	(1)	2.17	4.20	3-4	$a^5P-y^5F^o$ (63)
•6021.82	W	(2n)	2.19	4.24	2-3	
6015.25	P	⊙	2.21	4.26	1-2	
5958.34	P	⊙	2.17	4.24	3-3	
5943.58	P	⊙	2.19	4.26	2-2	
5963.25	V	(1)	2.21	4.28	1-1	
5881.76	P	⊙	2.17	4.26	3-2	
5892.80	P		2.19	4.28	2-1	
6097.08	P	⊙	2.17	4.19	3-2	$a^5P-z^3P^o$ (64)
6009.45	P		2.19	4.24	2-1	
m6012.21	P	N1	2.21	4.27	1-0	
6163.560	V	(1)	2.19	4.19	2-2	
6082.718	V	(1)	2.21	4.24	1-1	
6240.656	I	(2)	2.21	4.19	1-2	
m5224.30	P	T1	2.17	4.53	3-4	$a^5P-y^3F^o$ (65)
5143.73	P	⊙	2.19	4.59	2-3	
5102.24	P		2.21	4.63	1-2	
5202.339	B	8	2.17	4.54	3-3	$a^5P-y^5P^o$ (66)
5145.105	T	(-)	2.19	4.59	2-2	
5131.475	J	(2)	2.21	4.62	1-1	
5098.703	J	8	2.17	4.59	3-2	
5079.226	J	6	2.19	4.62	2-1	
5250.650	B	6	2.19	4.54	2-3	
5198.714	B	4	2.21	4.59	1-2	
4847.09	P		2.17	4.71	3-3	$a^5P-y^3D^o$ (67)
4771.702	J	(1)	2.19	4.77	2-2	
4745.129	U	(1)	2.21	4.81	1-1	
4731.77	P		2.17	4.77	3-2	
4700.42	P	⊙	2.19	4.81	2-1	
•4889.009	U	(1)	2.19	4.71	2-3	
4817.773	U	(1)	2.21	4.77	1-2	
4528.619	B	18	2.17	4.89	3-4	$a^5P-x^5D^o$ (68)
4494.568	B	12	2.19	4.93	2-3	
4482.257	J	6	2.21	4.97	1-2	
4459.121	B	10	2.17	4.93	3-3	
4442.343	B	12	2.19	4.97	2-2	
4447.722	B	9	2.21	4.99	1-1	
4407.714	J	5	2.17	4.97	3-2	
4408.419	B	6	2.19	4.99	2-1	
4430.618	B	6	2.21	5.00	1-0	
4371.00	P		2.17	4.99	3-4	$a^5P-y^7P^o$ (69)
4447.134	J	(2)Mn?	2.19	4.96	2-3	
4518.58	P	⊙	2.21	4.94	1-2	
4412.43	P	⊙	2.17	4.96	3-3	
4478.040	U	(1)	2.19	4.94	2-2	
4442.835	J	(2)	2.17	4.94	3-2	
4338.260	J	(2)	2.17	5.01	3-4	$a^5P-x^5F^o$ (70)
4324.961	V	(1)	2.19	5.04	2-3	
4329.54	P	⊙	2.21	5.06	1-2	
4292.13	P	⊙	2.17	5.04	3-3	
4292.293	V	(1)	2.19	5.06	2-2	
4308.54	P		2.21	5.08	1-1	
m4259.95	P	Fe	2.17	5.06	3-2	
4271.65	P	⊙	2.19	5.08	2-1	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Fe I continued						
4282.406	B	12	2.17	5.05	3-2	$a^5P-z^5S^o$ (71)
4315.087	B	10	2.19	5.05	2-2	
4352.737	B	9	2.21	5.05	1-2	
4001.666	J	5	2.17	5.25	3-3	$a^5P-x^5P^o$ (72)
3977.743	I	12	2.19	5.29	2-2	
3974.766	V	(1)	2.21	5.32	1-1	
3949.954	I	10	2.17	5.29	3-2	
3943.339	J	2	2.19	5.32	2-1	
4030.194	V	(3)	2.19	5.25	2-3	
4009.714	I	10	2.21	5.29	1-2	
3852.574	I	6	2.17	5.37	3-4	$a^5P-w^5D^o$ (73)
3816.340	J	4	2.19	5.42	2-3	
3807.534	G	7	2.21	5.45	1-2	
•3790.756	J	1	2.17	5.42	3-3	
3778.697	J	(1)	2.19	5.45	2-2	
3774.823	G	5	2.21	5.48	1-1	
3753.610	G	8	2.17	5.45	3-2	
3746.486	J	1	2.19	5.48	2-1	
3768.030	J	3	2.21	5.49	1-0	
3776.454	G	6	2.17	5.43	3-4	$a^5P-w^5F^o$ (74)
3781.188	J	(1)	2.19	5.45	2-3	
3792.834	V	1	2.21	5.47	1-2	
3756.069	J	1	2.17	5.45	3-3	
3764.21	P	⊙	2.19	5.47	2-2	
3779.486	J	2	2.21	5.48	1-1	
3739.317	V	1	2.17	5.47	3-2	
3751.09	P	⊙	2.19	5.48	2-1	
•3721.278	V	2	2.17	5.48	3-4	$a^5P-v^5D^o$ (75)
m3726.89	P	Fe	2.19	5.50	2-3	
3739.120	J	1	2.21	5.51	1-2	
•3702.500	J	1	2.17	5.50	3-3	
3711.30	P		2.19	5.51	2-2	
3725.65	P		2.21	5.53	1-1	
3687.100	J	2	2.17	5.51	3-2	
3698.03	P	⊙	2.19	5.53	2-1	
3707.918	G	8	2.17	5.49	3-2	$a^5P-y^5S^o$ (76)
3732.399	B	10	2.19	5.49	2-2	
3760.534	G	6	2.21	5.49	1-2	
•3612.940	J	1	2.17	5.58	3-3	$a^5P-x^3D^o$ (77)
3628.094	V	1	2.19	5.59	2-2	
3618.96	P		2.21	5.62	1-1	
3604.96	P		2.17	5.59	3-2	
3592.881	U	(1)	2.19	5.62	2-1	
•3636.186	V	2	2.19	5.58	2-3	
3654.66	W	(1)	2.21	5.59	1-2	
3497.110	J	10	2.17	5.70	3-3	$a^5P-w^5P^o$ (78)
3497.15	P	(1)	2.19	5.72	2-2	
3509.870	U	(1)	2.21	5.73	1-1	
3475.651	J	6	2.17	5.72	3-2	
3485.342	A	7	2.19	5.73	2-1	
3518.86	W	(2)	2.19	5.70	2-3	
3521.833	J	2	2.21	5.72	1-2	
3462.353	J	2	2.19	5.75	2-1	$a^5P-z^3S^o$ (79)
3486.556	U	(1)	2.21	5.75	1-1	
3427.121	A	20	2.17	5.77	3-4	$a^5P-u^5D^o$ (81)
3445.151	A	20	2.19	5.77	2-3	
3451.915	G	10	2.21	5.79	1-2	
3424.284	G	10	2.17	5.77	3-3	
3428.192	G	8	2.19	5.79	2-2	
3417.842	G	12	2.21	5.82	1-1	
3407.53	P	⊙	2.17	5.79	3-2	
3394.583	G	5	2.19	5.82	2-1	
•3426.383	J	5d	2.17	5.77	3-2	$a^5P-y^3P^o$ (82)
3426.637	J	5	2.19	5.79	2-1	
3477.850	V	(2)	2.21	5.76	1-0	
3447.278	G	8	2.19	5.77	2-2	
3450.328	G	10	2.21	5.79	1-1	
3471.27	V	5	2.21	5.77	1-2	
3407.461	A	20d	2.17	5.79	3-4	$a^5P-x^3F^o$ (83)
3404.357	G	6	2.19	5.81	2-3	
3415.530	G	4	2.21	5.83	1-2	
3383.981	C	8	2.17	5.81	3-3	
3392.304	G	8	2.19	5.83	2-2	
3372.070	G	3	2.17	5.83	3-2	
3382.403	G	3	2.17	5.82	3-4	$a^5P-z^3H^o$ (84)
3392.652	G	15	2.17	5.80	3-3	$a^5P-w^3D^o$ (85)
3399.336	A	15	2.19	5.82	2-2	
3406.803	J	6	2.21	5.84	1-1	
3379.017	G	6	2.17	5.82	3-2	
•3383.692	G	5	2.19	5.84	2-1	
3413.135	A	15	2.19	5.80	2-3	
3422.656	G	7	2.21	5.82	1-2	
3327.961	V	(1)	2.17	5.87	3-4	$a^5P-w^5G^o$ (86)
3346.942	V	1	2.17	5.85	3-2	a^5P-1° (87)
3366.870	V	5	2.19	5.85	2-2	
3389.748	V	2	2.21	5.85	1-2	
3343.243	V	(1)	2.17	5.86	3-4	$a^5P-z^1G^o$ (88)
3351.529	V	2	2.19	5.87	2-1	$a^5P-y^3S^o$ (89)
3374.221	V	(1)	2.21	5.87	1-1	
3286.755	A	20	2.17	5.92	3-3	$a^5P-v^5P^o$ (91)
3284.588	A	5	2.19	5.95	2-2	
3292.590	G	8	2.21	5.96	1-1	
3265.616	G	15	2.17	5.95	3-2	
3271.002	A	15	2.19	5.96	2-1	
3305.971	C	20	2.19	5.92	2-3	
3306.356	C	20	2.21	5.95	1-2	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3290.722	V	(2)	2.17	5.93	3-4	a^5P-w^5F^o
3288.972	V	2	2.19	5.94	2-3	(90)
3298.133	A	6	2.21	5.96	1-2	
3269.964	V	(1)	2.17	5.94	3-3	
3276.477	V	4	2.19	5.96	2-2	
3286.026	V	2	2.21	5.97	1-1	
3257.594	A	8	2.17	5.96	3-2	
3264.522	V	5	2.19	5.97	2-1	
3251.236	G	8	2.19	5.98	2-3	a^5P-w^3G^o
						(93)
3250.634	V	4	2.17	5.96	3-2	a^5P-x^3P^o
3246.973	V	6	2.19	5.99	2-1	(95)
3274.24	P	⊙	2.21	5.98	1-0	
3269.42	P	⊙	2.19	5.98	2-2	
3268.234	G	5	2.21	5.99	1-1	
3290.988	G	5	2.21	5.96	1-2	
3209.115	V	(1)	2.17	6.01	3-4	a^5P-y^1G^o
						(97)
•3211.872	V	4	2.21	6.06	1-2	a^5P-z^o
						(98)
3167.78	P	⊙	2.17	6.06	3-4	a^5P-w^3F^o
•3172.067	V	2	2.19	6.08	2-3	(99)
•3153.064	S	(-)	2.19	6.10	2-2	
3165.16	P	⊙	2.17	6.07	3-3	a^5P-v^3D^o
m3172.11	P	Fe	2.19	6.08	2-2	(100)
3186.82	P		2.21	6.09	1-1	
3154.41	P	(1)	2.17	6.08	3-2	
3166.59	P	⊙	2.19	6.09	2-1	
3182.970	G	3	2.19	6.07	2-3	
•3192.417	U	(1)	2.21	6.08	1-2	
3173.663	V	(3r)	2.19	6.08	2-3	a^5P-3°
						(101)
3063.149	S	(1)	2.17	6.20	3-2	a^5P-w^3P^o
3093.53	P		2.19	6.18	2-1	(102)
3121.76	W	(1)	2.21	6.17	1-0	
3079.84	P	⊙	2.19	6.20	2-2	
3023.583	S	(-)	2.17	6.25	3-4	a^5P-x^1G^o
						(103)
2981.852	G	6	2.17	6.31	3-4	a^5P-t^5D^o †
2972.277	G	3	2.19	6.34	2-3	(104)
2966.26	U	(2)	2.21	6.37	1-2	
3004.48	P	⊙	2.21	6.32	1-2	a^5P-v^3F^o†
						(105)
9362.370	E	4	2.27	3.59	2-3	a^3P-z^5P^o
10081.40	P	⊙	2.41	3.64	1-2	(106)
10311.88	P	⊙	2.47	3.67	0-1	
9013.90	F	1	2.27	3.64	2-2	
9820.24	P		2.41	3.67	1-1	
8804.624	E	10	2.27	3.67	2-1	
m7445.70	P	Fe	2.27	3.93	2-3	a^3P-z^3F^o
m7945.98	P	Fe	2.41	3.97	1-2	(107)
7723.20	O	4	2.27	3.87	2-3	a^3P-z^3D^o
8239.130	E	8	2.41	3.91	1-2	(108)
8401.42	O	2	2.47	3.94	0-1	
7512.12	P	⊙	2.27	3.91	2-2	
8072.16	P	⊙	2.41	3.94	1-1	
7373.07	P	⊙	2.27	3.94	2-1	
6608.03	V	2	2.27	4.14	2-3	a^3P-y^5D^o
7016.075	V	20	2.41	4.17	1-2	(109)
7151.495	V	1	2.47	4.20	0-1	
8481.878	I	20	2.27	4.17	2-2	
6911.52	V	1	2.41	4.20	1-1	
6392.534	V	(1)	2.27	4.20	2-1	
6861.93	V	2	2.41	4.21	1-0	
6267.64	P		2.27	4.24	2-3	a^3P-y^5F^o
6667.17	P	⊙?	2.41	4.26	1-2	(110)
6822.05	P	1	2.47	4.28	0-1	
6421.355	B	200	2.27	4.19	2-2	a^3P-z^3P^o
6750.152	I	100	2.41	4.24	1-1	(111)
6254.262	I	6	2.27	4.24	2-1	
6663.446	B	80	2.41	4.27	1-0	
6945.208	I	150	2.41	4.19	1-2	
6978.855	I	100	2.47	4.24	0-1	
5322.049	V	(2)	2.27	4.59	2-3	a^3P-y^3F^o
5563.69	P	⊙	2.41	4.83	1-2	(112)
5222.40	P	⊙	2.27	4.63	2-2	
5438.594	V	(2)	2.27	4.54	2-3	a^3P-y^5P^o
5678.60	P	⊙	2.41	4.59	1-2	(113)
5754.89	P	⊙	2.47	4.62	0-1	
5323.51	P	(1)	2.27	4.59	2-2	
5598.47	P		2.41	4.62	1-1	
5253.03	P	⊙	2.27	4.82	2-1	
5049.825	B	15	2.27	4.71	2-3	a^3P-y^3D^o
m5227.15	P	Fe	2.41	4.77	1-2	(114)
5273.379	J	4	2.47	4.81	0-1	
4924.776	B	3	2.27	4.77	2-2	
5141.750	V	(2)	2.41	4.81	1-1	
4848.898	V	(1)	2.27	4.81	2-1	
4830.125	J	(2)	2.27	4.93	2-3	a^3P-x^5D^o
4834.511	V	(1)	2.41	4.97	1-2	(115)
4908.61	P	⊙	2.47	4.99	0-1	
4574.724	J	(2)	2.27	4.97	2-2	
4794.36	P	⊙	2.41	4.99	1-1	
4538.784	V	(1)	2.27	4.99	2-1	
4439.883	J	(2)	2.27	5.05	2-2	a^3P-z^5S^o
						(116)
4128.84	U	(1)	2.27	5.25	2-3	a^3P-x^5P^o
4229.29	P		2.41	5.29	1-2	(117)
4338.84	P	⊙	2.47	5.32	0-1	
4083.554	V	(1)	2.27	5.29	2-2	
4249.32	P	⊙	2.41	5.32	1-1	
•4047.315	V	(1)	2.27	5.32	2-1	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4037.725	V	(1)	2.27	5.33	2-3	a^3P-y^5G^o
4225.79	P	⊙	2.41	5.33	1-2	(118)
4007.233	V	(1gn)	2.27	5.35	2-3	a^3P-z^5H^o
						(119)
3913.635	J	4	2.27	5.42	2-3	a^3P-w^5D^o
4058.766	V	3	2.41	5.45	1-2	(120)
4101.684	V	(1)	2.47	5.48	0-1	
3874.053	V	(1)	2.27	5.45	2-2	
•4021.622	V	(1)	2.41	5.48	1-1	
3840.20	P	⊙	2.27	5.48	2-1	
4013.89	P		2.41	5.49	1-0	
3876.671	U	(1)	2.27	5.45	2-3	a^3P-w^5F^o
						(121)
3819.62	P		2.27	5.50	2-3	a^3P-v^5D^o
3981.106	V	(1)	2.41	5.51	1-2	(122)
4043.69	P	⊙	2.47	5.53	0-1	
3803.24	P	⊙	2.27	5.51	2-2	
3965.83	P	⊙	2.41	5.53	1-1	
3825.404	J	(1gn)	2.27	5.49	2-2	a^3P-y^5S^o
4005.38	P	⊙	2.41	5.49	1-2	(123)
3724.380	B	8	2.27	5.58	2-3	a^3P-x^3D^o
3885.512	I	5	2.41	5.59	1-2	(124)
3918.319	J	3	2.47	5.62	0-1	
3715.911	G	4	2.27	5.59	2-2	
3845.170	K	(5)	2.41	5.62	1-1	
3678.98	W	(1)	2.27	5.62	2-1	
3677.477	V	(2)	2.27	5.62	2-3	a^3P-y^3G^o
						(125)
3630.67	P	⊙?	2.27	5.67	2-3	a^3P-x^5G^o
						(126)
3601.42	P	⊙	2.27	5.70	2-3	a^3P-w^5P^o
3735.71	P	⊙	2.41	5.72	1-2	(127)
•3790.756	J	1	2.47	5.73	0-1	
m3578.67	P	Cr	2.27	5.72	2-2	
3722.24	P	⊙	2.41	5.73	1-1	
3566.31	P	⊙	2.27	5.73	2-1	
3542.243	V	1	2.27	5.75	2-1	a^3P-z^3S^o
3696.03	W	(1)	2.41	5.75	1-1	(128)
3763.57	P	⊙	2.47	5.75	0-1	
3524.236	G	4	2.27	5.77	2-3	a^3P-u^5D^o
3657.143	V	1	2.41	5.79	1-2	(130)
•3683.616	V	(1)	2.47	5.82	0-1	
3506.498	G	6	2.27	5.79	2-2	
3618.91	P	⊙	2.41	5.82	1-1	
3471.350	U	6	2.27	5.82	2-1	
3619.66	P	⊙	2.41	5.82	1-0	
3526.465	J	4	2.27	5.77	2-2	a^3P-y^3P^o
3655.35	P	⊙	2.41	5.79	1-1	(131)
3504.866	V	2	2.27	5.79	2-1	
3686.260	J	2	2.41	5.76	1-0	
3678.863	J	3	2.41	5.77	1-2	
3721.396	V	1	2.47	5.79	0-1	
3481.558	V	(1)	2.27	5.81	2-3	a^3P-x^3F^o
3616.326	U	(1)	2.41	5.83	1-2	(132)
m3490.74	P	Co	2.27	5.80	2-3	a^3P-w^3D^o
3624.30	W	(1)	2.41	5.82	1-2	(133)
3670.810	V	1	2.47	5.84	0-1	
•3476.336	V	(2w)	2.27	5.82	2-2	
3606.53	P	⊙	2.41	5.84	1-1	
m3459.95	P	Fe	2.27	5.84	2-1	
3442.364	V	5	2.27	5.85	2-2	a^3P-1°
3587.424	J	2	2.41	5.85	1-2	(134)
3426.337	U	(2)	2.27	5.87	2-1	a^3P-y^3S^o
3569.99	W	(1)	2.41	5.87	1-1	(135)
3632.979	J	3	2.47	5.87	0-1	
3393.915	V	(1)	2.27	5.91	2-3	a^3P-x^3G^o
						(136)
m3378.73	P	Fe	2.27	5.92	2-3	a^3P-v^5P^o
3494.15	W	(1)	2.41	5.95	1-2	(137)
3538.55	W	(1)	2.47	5.96	0-1	
3356.407	H	3	2.27	5.95	2-2	
3478.788	V	(1)	2.41	5.96	1-1	
3342.225	V	5	2.27	5.96	2-1	
3347.927	A	8	2.27	5.96	2-2	a^3P-v^5F^o
3484.97	W	(1)	2.41	5.96	1-2	(138)
3340.566	A	6	2.27	5.96	2-2	a^3P-x^3P^o
3451.628	J	2	2.41	5.99	1-1	(139)
3317.121	G	3	2.27	5.99	2-1	
3458.304	J	4	2.41	5.98	1-0	
3477.007	V	(1)	2.41	5.96	1-2	
3510.443	V	(2)	2.47	5.99	0-1	
3388.81	P	(1)	2.41	6.06	1-2	a^3P-2°
						(140)
•3239.029	V	(1)	2.27	6.08	2-3	a^3P-w^5F^o
3345.679	V	(1)	2.41	6.10	1-2	(141)
•3250.400	V	(2)	2.27	6.07	2-3	a^3P-v^3D^o
3367.161	V	(1)	2.41	6.08	1-2	(142)
3418.688	V	(1)	2.47	6.09	0-1	
•3239.029	V	(1)	2.27	6.08	2-2	
3380.935	V	(1)	2.41	6.09	1-1	
3233.304	V	(1)	2.27	6.09	2-1?	
3214.624	V	(1)	2.27	8.11	2-2	a^3P-z^1D^o
						(143)
3142.888	V	5	2.27	6.20	2-2	a^3P-w^3P^o
•3278.741	V	4	2.41	8.18	1-1	(144)
3157.15	P	⊙	2.27	6.18	2-1	
3288.860	V	(2)	2.41	6.17	1-0	
3263.378	V	(2)	2.41	6.20	1-2	
3331.778	V	(2)	2.47	6.18	0-1	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3030.61	P	⊙	2.27	6.34	2-3	a^3P-v^3F^o
						(145)
2976.126	G	5	2.27	6.42	2-3	a^3P-u^3D^o
3053.065	G	5	2.41	6.46	1-2	(146)
3078.436	V	3	2.47	6.48	0-1	
3033.104	V	(1)	2.41	6.48	1-1	
3063.939	V	(2)	2.41	6.44	1-1	a^3P-t^3D^o
						(147)
2996.386	G	5	2.41	6.53	1-2	a^3P-v^3P^o
2960.303	V	1	2.47	6.64	0-1	(148)
10191.51	P	⊙?	2.41	3.63	4-3	z^7D^o-b^3D
						(149)
5871.04	V	(1)	2.46	4.56	2-2	z^7D^o-d^3F
5908.24	V	(2)	2.47	4.56	1-2	(150)
4260.479	H	35	2.39	5.29	5-5	z^7D^o-e^7D
4235.942	I	25	2.41	5.33	4-4	(152)
4222.219	J	12	2.44	5.36	3-3	
4210.352	J	15	2.47	5.40	1-1	
4198.310	J	20	2.39	5.33	5-4	
4187.802	J	20	2.41	5.36	4-3	
4187.044	J	20	2.44	5.39	3-2	
4191.436	J	15	2.46	5.40	2-1	
4299.242	I	18	2.41	5.29	4-5	
4271.159	J	20	2.44	5.33	3-4	
4250.125	J	25	2.46	5.36	2-3	
4233.608	I	18	2.47	5.39	1-2	
3947.393	V	(1)	2.39	5.52	5-4	z^7D^o-e^5D
3920.645	U	(1)	2.41	5.56	4-3	(153)
3908.68	P	⊙	2.44	5.60	3-2	
3905.86	P	⊙	2.46	5.62	2-1	
3908.90	P		2.47	5.63	1-0	
3980.65	W	(1)	2.41	5.52	4-4	
3950.78	P	⊙	2.44	5.56	3-3	
m3932.59	P	Fe	2.46	5.60	2-2	
3922.08	P	⊙	2.47	5.62	1-1	
4011.71	W	(1)	2.44	5.52	3-4	
3975.21	W	(1)	2.46	5.56	2-3	
3949.23	P	⊙	2.47	5.60	1-2	
3615.01	P	⊙	2.39	5.80	5-5	z^7D^o-e^5F
3594.10	P	⊙	2.41	5.85	4-4	(154)
3570.60	P	⊙	2.44	5.90	3-3	
3554.65	P	⊙	2.46	5.93	2-2	
3544.88	P	⊙	2.47	5.95	1-1	
3225.789	A	25	2.39	6.21	5-6	z^7D^o-e^7F
3196.930	A	20	2.41	6.28	4-5	(155)
3180.223	G	20	2.44	6.32	3-4	
•3200.475	A	15	2.46	8.31	2-3	
3192.799	G	8	2.47	6.34	1-2	
3175.447	A	12	2.39	6.28	5-5	
3160.658	A	10	2.41	6.32	4-4	
•3184.631	V	3	2.44	6.31	3-3	
•3181.922	U	(2)	2.46	6.34	2-2	
3205.400	A	15	2.47	6.32	1-1	
3139.661	U	(1)	2.39	6.32	5-4	
3165.005	V	3	2.41	6.31	4-3	
3166.24	P	⊙	2.44	6.34	3-2	
3194.422	V	3	2.46	8.32	2-1	
3222.069	A	20	2.39	6.22	5-5	z^7D^o-f^7D
3199.530	G	15	2.41	6.27	4-4	(156)
•3214.044	V	20	2.44	6.28	3-3	
3215.940	A	12	2.46	6.30	2-2	
3221.936	V	2	2.47	6.30	1-1	
3178.015	A	10	2.39	6.27	5-4	
3194.03	P		2.41	6.28	4-3	
3199.93	P		2.44	6.30	3-2	
3210.830	G	10	2.46	6.30	2-1	
3244.190	A	15	2.41	6.22	4-5	
3219.581	G	12	2.44	6.27	3-4	
3230.16	P		2.46	6.28	2-3	
3227.067	V	3	2.47	6.30	1-2	
3217.380	A	10	2.39	6.22	5-4	z^7D^o-f^5D
3227.798	G	15	2.41	6.24	4-3	(157)
3230.963	G	10	2.44	6.26	3-2	
3228.262	V	5	2.46	6.28	2-1	
3228.900	G	3	2.47	6.29	1-0	
3239.436	A	15	2.41	6.22	4-4	
3248.206	G	10	2.44	6.24	3-3	
3247.297	V	3	2.46	6.26	2-2	
m3239.46	P	Fe	2.47	6.28	1-1	
3259.991	G	6	2.44	6.22	3-4	
3264.716	V	(2)	2.46	6.24	2-3	
3258.62	P	⊙	2.47	6.26	1-2	
3211.989	G	10	2.39	6.23	5-4	z^7D^o-e^7P
3219.806	G	10	2.41	6.25	4-3	(158)
m3214.07	P	Fe	2.44	6.28	3-2	
3233.987	G	12	2.41	6.23	4-4	
3240.11	P	⊙	2.44	6.25	3-3	
3230.210	V	6	2.46	6.28	2-2	
3254.46	P	⊙	2.44	6.23	3-4	
3256.52	P	⊙	2.46	6.25	2-3	
3241.43	P		2.47	6.28	1-2	
3207.092	V	2	2.39	6.24	5-6	z^7D^o-e^5G
3210.230	G	8	2.41	6.26	4-5	(159)
3201.891	S	(-)	2.44	6.29	3-4	
3193.314	V	8	2.46	6.32	2-3	
3188.819	G	7	2.47	6.34	1-2	
3188.567	G	4	2.39	6.26	5-5	
•3182.078	V	3	2.41	6.29	4-4	
m3177.52	P	Fe+	2.44	6.32	3-3	
m3177.96	P	Fe	2.46	6.34	2-2	
3160.77	P		2.39	6.29	5-4	
3157.992	U	(2)	2.41	6.32	4-3	
•3162.335	U	2n	2.44	6.34	3-2	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Fe I continued						
3161.949	G	8	2.39	6.29	5-8	$z^7D^o-e^7G$
3157.040	A	8	2.41	6.32	4-5	(160)
3165.860	G	4	2.44	6.34	3-4	
3168.86	W	2	2.46	6.35	2-3	
3171.659	V	2	2.47	6.36	1-2	
3136.08	P	⊙	2.39	6.32	5-5	
3146.475	U	(1)	2.41	6.34	4-4	
3153.322	U	(1)	2.44	6.35	3-3	
3160.92	P	⊙	2.46	6.36	2-2	
3168.94	P		2.47	6.37	1-1	
*3125.653	C	15	2.39	6.34	5-4	
m3134.08	P	Fe	2.41	6.35	4-3	
3145.46	P		2.44	6.36	3-2	
3158.21	P		2.46	6.37	2-1	
3148.46	P		2.39	6.31	5-5	$z^7D^o-f^5F$
3133.96	P	⊙	2.41	6.35	4-4	(161)
3139.10	P	⊙	2.44	6.37	3-3	
3144.488	V	6n	2.46	6.38	2-2	
3150.20	P		2.47	6.39	1-1	
3113.31	P		2.39	6.35	5-4	
3120.03	P		2.41	6.37	4-3	
3129.18	P	(1)	2.44	6.38	3-2	
3139.60	P		2.46	6.39	2-1	
3169.58	P		2.41	6.31	4-5	
3153.200	G	5	2.44	6.35	3-4	
3154.510	V	2	2.46	6.37	2-3	
3155.12	P	(1)	2.47	6.38	1-2	
*3164.631	V	3	2.44	6.31	3-2	$z^7D^o-e^5S$
*3200.475	A	15	2.46	6.31	2-2	(162)
3211.494	V	4	2.47	6.31	1-2	
3164.308	U	(1)	2.44	6.34	3-4	$z^7D^o-g^5D$ (163)
3123.353	U	(1)	2.41	6.37	4-3	$z^7D^o-e^7S$
3142.445	V	6	2.44	6.37	3-3	(164)
3157.68	K	6	2.46	6.37	2-3	
3097.49	P	⊙	2.41	6.40	4-3	$z^7D^o-e^5P$
3094.08	P	⊙	2.44	6.43	3-2	(165)
3113.67	P	⊙	2.46	6.42	2-1	
3116.250	U	(1)	2.44	6.40	3-3?	
3109.05	U	(1)	2.46	6.43	2-2	
3124.08	W	(1)	2.47	6.42	1-1	
8667.37	P	⊙?	2.44	3.87	4-3	$a^3H-z^3D^o$ (166)
6988.530	I	5	2.39	4.16	6-5	$a^3H-y^5F^o$
*6933.628	L	6	2.42	4.20	5-4	(167)
6875.45	V	1	2.44	4.24	4-3	
7103.15	P	⊙	2.42	4.16	5-5	
7014.99	O	(1)	2.44	4.20	4-4	
m6469.12	P	Fe	2.39	4.30	6-6	$a^3H-z^5G^o$
6593.878	I	60	2.42	4.29	5-5	(166)
6462.731	I	30	2.44	4.35	4-4	
6494.985	B	1000	2.39	4.29	6-5	
6393.605	B	400	2.42	4.35	5-4	
6318.022	B	10	2.44	4.40	4-3	
6567.22	P		2.42	4.30	5-6	
6667.42	P	1	2.44	4.29	4-5	
6252.561	B	20	2.39	4.37	6-5	$a^3H-z^3G^o$
6191.562	B	20	2.42	4.42	5-4	(169)
6136.620	B	20	2.44	4.45	4-3	
6344.154	I	2	2.42	4.37	5-5	
6256.370	I	4	2.44	4.42	4-4	
6412.20	P	⊙?	2.44	4.37	4-5	
5858.27	P	⊙	2.42	4.53	5-4	$a^3H-y^3F^o$
5753.97	P	⊙	2.44	4.59	4-3	(170)
5916.250	V	(3)	2.44	4.53	4-4	
4315.95	P	⊙	2.42	5.28	5-6	$a^3H-y^5G^o$
4323.37	P	⊙	2.44	5.30	4-5	(171)
4271.95	P	⊙	2.42	5.31	5-4	
4261.60	P	⊙	2.44	5.33	4-3	
4177.52	P		2.39	5.35	6-6	$a^3H-z^5H^o$
4277.68	U	(1)	2.42	5.31	5-5	(172)
4235.84	P	⊙	2.39	5.31	6-5	
4256.32	P	⊙	2.42	5.32	5-4	
4247.31	P	⊙	2.44	5.35	4-3	
4216.21	P	⊙	2.42	5.35	5-6	
4022.45	W	(1)	2.39	5.46	6-5	$a^3H-w^5F^o$
4096.96	P	⊙	2.42	5.43	5-4	(173)
4100.91	P	⊙	2.44	5.45	4-3	
4125.23	P	⊙	2.44	5.43	4-4	
3859.214	I	10	2.39	5.59	6-5	$a^3H-y^3G^o$
3873.763	B	8	2.42	5.61	5-4	(175)
3876.663	V	(8)	2.44	5.62	4-3	
3893.924	J	(2)	2.42	5.59	5-5	
3899.037	J	2	2.44	5.61	4-4	
m3813.07	P	Fe	2.39	5.63	6-6	$a^3H-x^5G^o$
3796.00	U	(1)	2.39	5.64	6-5	(176)
3813.94	P	⊙	2.42	5.66	5-4	
3826.63	P	⊙	2.44	5.67	4-3	
3846.949	V	(1)	2.42	5.63	5-6	
3760.052	B	8	2.39	5.68	6-7	$a^3H-z^3I^o$
3765.950	G	6	2.42	5.68	5-6	(177)
3794.340	J	8	2.44	5.70	4-5	
3753.154	J	(ign)	2.39	5.68	6-6	
3770.405	V	(1)	2.42	5.70	5-5	
3689.02	P	⊙	2.42	5.77	5-4	$a^3H-u^5D^o$
*3708.602	V	(1)	2.44	5.77	4-3	(178)
3711.92	P	⊙	2.44	5.77	4-4	
*3668.24	W	1	2.42	5.79	5-4	$a^3H-x^3F^o$
3681.36	W	(1)	2.44	5.81	4-3	(179)
3688.677	V	(1)	2.44	5.79?	4-4	
Fe I continued						
3623.187	G	6	2.39	5.80	6-8	$a^3H-z^3H^o$
3650.280	J	5	2.42	5.80	5-5	(180)
3659.516	G	8	2.44	5.82	4-4	
3619.76	W	(1)	2.39	5.80	6-5	
3637.251	V	1	2.42	5.82	5-4	
3653.763	V	1	2.42	5.80	5-6	
3672.89	W	1	2.44	5.80	4-5	
3573.842	V	3	2.39	5.85	6-6	$a^3H-w^5G^o$
3596.20	W	1	2.42	5.85	5-5	(181)
3595.87	W	(1)	2.44	5.67	4-4	
3566.59	W	(1)	2.39	5.85	6-5	
3574.37	P		2.42	5.87	5-4	
3582.56	W	(1)	2.44	5.89	4-3	
3603.572	U	(1)	2.42	5.85	5-6	
3617.97	P	⊙	2.44	5.85	4-5	
3543.09	P	⊙	2.39	5.88	6-5	$a^3H-v^5F^o$
3531.43	W	(1)	2.42	5.92	5-4	(182)
3528.24	P	⊙	2.44	5.94	4-3	
3572.32	P	⊙	2.42	5.88	5-5	
3552.42	U	(1)	2.44	5.92	4-4	
3593.80	P	⊙	2.44	5.88	4-5	
3514.62	W	(1)	2.39	5.91	6-5	$a^3H-x^3G^o$
3546.21	U	(1)	2.42	5.90	5-4	(183)
3564.56	P	⊙	2.44	5.91	4-3	
3543.39	W	(1)	2.42	5.91	5-5	
3567.36	W	(1)	2.44	5.90	4-4	
3564.51	P	⊙	2.44	5.91	4-5	
3466.279	V	(1)	2.39	5.95	6-5	$a^3H-w^3G^o$
3478.382	V	(ign)	2.42	5.97	5-4	(185)
3484.84	W	(1)	2.44	5.98	4-3	
3494.25	P	⊙	2.42	5.95	5-5	
3448.19	P	⊙	2.39	5.97	6-5	$a^3H-z^1H^o$
*3475.867	V	(1)	2.42	5.97	5-5	(186)
3496.19	U	(1)	2.44	5.97	4-5	
3437.631	V	(1)	2.42	6.01	5-4	$a^3H-y^1G^o$
3457.512	V	(1)	2.44	6.01	4-4	(187)
3390.25	P	⊙?	2.42	6.06	5-4	$a^3H-w^3F^o$
3394.085	V	(1)	2.44	6.08	4-3	(188)
3395.90	P	⊙?	2.44	6.08	4-3	a^3H-3° (189)
3327.498	V	(2)	2.39	6.10	6-6	$a^3H-y^3H^o$
3334.223	V	(3)	2.42	6.12	5-5	(190)
*3339.202	V	2	2.44	6.14	4-4	
3308.75	P	⊙	2.39	6.12	6-5	
3320.650	V	(2)	2.42	6.14	5-4	
3353.268	V	(1)	2.42	6.10	5-6	
3352.929	V	(1)	2.44	6.12	4-5	
3324.541	V	4	2.39	6.11	6-5	$a^3H-v^3G^o$
3331.616	V	3	2.42	6.13	5-4	(191)
3325.468	V	4	2.44	6.15	4-3	
*3350.264	V	(3)	2.42	6.11	5-5	
			(2.44	6.13	4-4	
3369.14	P	⊙	2.44	6.11	4-5	
*3225.607	U	(1)	2.42	6.25	5-4	$a^3H-x^1G^o$
3243.118	V	(1)	2.44	6.25	4-4	(192)
3160.342	V	(2)	2.39	6.30	6-6	$a^3H-x^3H^o$
3178.970	V	3	2.42	6.30	5-5	(192a)
3155.80	P	⊙	2.39	6.30	6-5	
3183.58	P	⊙	2.42	6.30	5-6	
3155.293	V	2	2.42	6.33	5-4	$a^3H-w^3F^o$
*3172.067	V	2	2.44	6.33	4-4	(193)
m3125.68	P	Fe	2.39	6.34	6-5	$a^3H-u^3G^o$
3119.495	G	6	2.42	6.38	5-4	(194)
3120.435	G	6	2.44	6.40	4-3	
3148.420	U	(2)	2.42	6.34	5-5	
3135.863	U	(1)	2.44	6.38	4-4	
3165.08	P	⊙	2.44	6.34	4-5	
3144.92	P	⊙	2.42	6.35	5-4	a^3H-4°
3161.55	P	⊙	2.44	6.35	4-4	(195)
3100.638	V	(2)	2.39	6.37	6-5	a^3H-6° (196a)
*3106.542§	U	(1)	2.44	6.42	4-3	$a^3H-u^3D^o$ (196)
3083.152	U	(1)	2.44	6.45	4-3	$a^3H-t^3D^o$ (197)
3025.638	V	15	2.39	6.47	6-6	$a^3H-w^3H^o$
3030.149	C	15	2.42	6.50	5-5	(198)
3031.313	G	12	2.44	6.51	4-4	
3009.098	V	3	2.39	6.50	6-5	
3015.913	C	4	2.42	6.51	5-4	
3046.929	V	(1)	2.42	6.47	5-6	
3045.594	V	(1)	2.44	6.50	4-5	
3005.302	G	3	2.39	6.50	6-7	$a^3H-y^3I^o$
3039.322	V	(2)	2.42	6.48	5-6	(199)
3019.291	V	(1)	2.44	6.53	4-5	
3018.134	U	(1)	2.39	6.48	6-6	
3004.119	V	(2)	2.42	6.53	5-5	
*2986.655§	V	(1)	2.42	6.55	5-6	$a^3H-z^1I^o$ (200)
2960.60	P	⊙	2.44	6.58	4-4	a^3H-9° † (201)
9372.900	E	6	2.55	3.86	4-4	$b^3F-z^3F^o$
9148.11	F	3	2.58	3.93	3-3	(202)
9010.55	F	2	2.60	3.97	2-2	
9359.420	E	3	2.55	3.87	4-3	$b^3F-z^3D^o$
9246.54	F	2	2.58	3.91	3-2	(203)
9173.20	P	⊙	2.60	3.94	2-1	
7461.534	V	(1)	2.55	4.20	4-4	$b^3F-y^5F^o$
7430.58	M	1	2.58	4.24	3-3	(204)
7400.87	P	⊙	2.60	4.26	2-2	
Fe I continued						
7089.54	P	1	2.55	4.29	4-5	$b^3F-z^5G^o$
6950.82	P		2.58	4.35	3-4	(205)
6860.29	V	1	2.60	4.40	2-3	
6839.828	V	4	2.55	4.35	4-4	
6783.71	V	2	2.58	4.40	3-3	
6746.96	P	⊙	2.60	4.43	2-2	
m6677.96	P	Fe	2.55	4.40	4-3	
6672.88	P		2.58	4.43	3-2	
6783.27	P	⊙	2.55	4.37	4-5	$b^3F-z^3G^o$
6712.68	P		2.58	4.42	3-4	(206)
6646.98	V	(1)	2.60	4.45	2-3	
6609.116	I	30	2.55	4.42	4-4	
6575.022	I	30	2.58	4.45	3-3	
8475.632	I	12	2.55	4.45	4-3	
6230.728	B	25	2.55	4.53	4-4	$b^3F-y^3F^o$
6137.696	B	18	2.58	4.59	3-3	(207)
8065.487	B	15	2.60	4.63	2-2	
8051.00	P	⊙	2.55	4.59	4-3	
*6005.53	V	(1)	2.58	4.63	3-2	
8322.693	I	5	2.58	4.53	3-4	
6200.323	J	4	2.60	4.59	2-3	
8199.475	U	(1)	2.55	4.54	4-3	$b^3F-y^5P^o$
6139.65	P	⊙	2.58	4.59	3-2	(208)
6106.84	P	⊙	2.60	4.62	2-1	
6290.55	P	⊙	2.58	4.54	3-3	
6202.31	P		2.60	4.59	2-2	
6356.293	U	(1)	2.60	4.54	2-3	
5701.553	J	7	2.55	4.71	4-3	$b^3F-y^3D^o$
5615.308	V	(2)	2.58	4.77	3-2	(209)
5567.401	V	(2)	2.60	4.81	2-1	
5778.47	V	(1)	2.58	4.71	3-3	
5667.67	P		2.60	4.77	2-2	
5833.93	P	⊙	2.60	4.71	2-3	
5265.94	P		2.55	4.89	4-4	$b^3F-x^5D^o$
*5235.392	V	(2)	2.58	4.93	3-3	(210)
5172.21	P	⊙	2.55	4.93	4-3	
5164.70	P	⊙	2.58	4.97	3-2	
m5162.38	P	Fe	2.60	4.99	2-1	
5331.48	P		2.58	4.89	3-4	
5280.91	P		2.60	4.93	2-3	
5069.60	P	⊙	2.58	5.01	3-4	$b^3F-x^5F^o$
5010.30	P	⊙	2.55	5.01	4-4	(211)
5006.72	P	⊙	2.58	5.04	3-3	
5003.85	P	⊙	2.60	5.06	2-2	
4586.68	P	⊙	2.55	5.25	4-3	$b^3F-x^5P^o$ (212)
*4488.917	J	(2)	2.55	5.30	4-5	$b^3F-y^5G^o$
4513.72	P	⊙	2.58	5.31	3-4	(213)
4509.13	P	⊙	2.60	5.33	2-2	
*4373.563	J	(2)	2.55	5.37	4-4	$b^3F-w^5D^o$
4337.52	P		2.58	5.42	3-3	(214)
4319.45	P	⊙	2.60	5.45	2-2	
4294.04	P		2.55	5.42	4-3	
4288.962	V	(1)	2.58	5.45	3-2	
4277.41	P		2.60	5.48	2-1	
4235.65	P	⊙	2.55	5.46	4-5	$b^3F-w^5F^o$
4318.81	P	⊙	2.58	5.43	3-4	(215)
4322.70	P	⊙	2.60	5.45	2-3	
4275.72	U	(1)	2.55	5.43	4-4	
4270.31	P	⊙	2.58	5.47	3-2	
4283.40	P	⊙	2.60	5.48	2-1	
4246.79	P		2.58	5.48	3-4	$b^3F-w^5D^o$
4251.88	P	⊙	2.60	5.50	2-3	(216)
4067.275	B	4	2.55	5.58	4-3	$b^3F-x^3D^o$
4095.975	I	4	2.58	5.59	3-2	(217)
4078.365	J	4	2.60	5.62	2-1	
4106.266	V	(1)	2.58	5.58	3-3	
*4123.748	J	(1)	2.60	5.59	2-2	
4134.19	P	⊙	2.60	5.58	2-3	
4055.046	V	3	2.55	5.59	4-5	$b^3F-y^3G^o$
4071.52	U	(1)	2.58	5.61	3-4	(218)
4076.498	V	(1)	2.60	5.62	2-3	
4033.19	P	(1)	2.55	5.61	4-4	
4049.336	V	(1)	2.58	5.62	3-3	
4011.416	V	(1)	2.55	5.62	4-3	
3985.32	P	⊙	2.55	5.64	4-5	$b^3F-x^5G^o$
4005.49	P	⊙	2.58	5.66	3-4	(219)
4019.05	U	(1)	2.60	5.67	2-3	
3968.38	P		2.55	5.66	4-4	
3992.64	P	⊙	2.58	5.67	3-3	
*4010.77	W	(1)	2.60	5.67	2-2	
3955.77	P	⊙	2.55	5.67	4-3	
3984.46	P	⊙	2.58	5.67	3-2	
3921.27	U	(1)	2.55	5.70	4-5	$b^3F-z^3I^o$ (220)
3833.311	J	5	2.55	5.77	4-4	$b^3F-u^5D^o$
3864.31	P	⊙	2.58	5.77	3-3	(221)
3867.45	P	⊙	2.60	5.79	2-2	
3829.771	U	(2)	2.55	5.77	4-3	
3842.975	U	(1)	2.58	5.79	3-2	
3824.73	P		2.60	5.82	2-1	
3867.925	V	1	2.58	5.77	3-4	
3808.731	J	4	2.55	5.79	4-4	$b^3F-x^3F^o$
3813.059	J	5?	2.58	5.81	3-3	(222)
3821.834	J	3	2.60	5.83	2-2	
3779.424	V	3*	2.55	5.81	4-3	
3797.948	J	(1)	2.58	5.83	3-2	
3842.90	P	⊙	2.58	5.79	3-4	
3837.132	J	1	2.60	5.81	2-3	
3791.504	J	(1)	2.55	5.80	4-5	$b^3F-z^3H^o$
*3811.05	U	(1)	2.58	5.82	3-4	(223)
3777.448	J	2	2.55	5.82	4-4	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
m3790.24	P	Fe	2.55	5.80	4-3	$b^3F-w^3D^o$
m3806.76	P	Fe	2.58	5.82	3-2	(224)
3810.90	P	⊙	2.60	5.84	2-1	
3824.074	J	1	2.58	5.80	3-3	
3830.757	J	1	2.60	5.82	2-2	
3848.29	P	⊙	2.60	5.80	2-3	
3733.20	P	⊙	2.55	5.85	4-5	$b^3F-w^5G^o$
3742.07	W	(1)	2.58	5.87	3-4	(225)
3750.677	V	(1)	2.60	5.89	2-3	
3709.665	U	(1)	2.55	5.87	4-4	
3727.67	P	⊙	2.58	5.89	3-3	
3731.374	J	2	2.60	5.90	2-2	
*3695.507	V	(1)	2.55	5.89	4-3	
*3708.603	V	(1)	2.58	5.90	3-2	
3766.092	V	(1)	2.58	5.85	3-2	b^3F-1°
3789.570	J	(1)	2.60	5.85	2-2	(226)
3728.668	J	1	2.55	5.86	4-4	$b^3F-z^1G^o$
3761.416	J	1	2.58	5.86	3-4	(227)
3676.314	B	6	2.55	5.91	4-5	$b^3F-x^3G^o$
3711.225	J	3	2.58	5.90	3-4	(228)
3730.945	J	2	2.60	5.91	2-3	
3679.33	W	(1)	2.55	5.90	4-4	
3708.18	P	⊙	2.58	5.91	3-3	
*3663.458	V	1	2.55	5.92	4-4	$b^3F-v^5F^o$
3668.893	U	(1)	2.58	5.94	3-3	(229)
3675.44	P	⊙	2.60	5.96	2-2	
3637.73	W	(1)	2.55	5.94	4-3	
3653.35	P	⊙	2.58	5.96	3-2	
3660.41	P	⊙	2.60	5.97	2-1	
*3695.054	B	8	2.58	5.92	3-4	
3691.18	P	⊙	2.60	5.94	2-3	
3658.55	U	(1)	2.55	5.92	4-3	$b^3F-v^5P^o$
*3663.458	V	1	2.58	5.95	3-2	(231)
3668.58	P	(1)	2.60	5.96	2-1?	
3690.095	S	(-)	2.58	5.92	3-3	
3685.66	P	⊙	2.60	5.95	2-2	
*3623.440	G	1	2.55	5.95	4-5	$b^3F-w^3G^o$
3636.995	J	2	2.58	5.97	3-4	(233)
3643.716	V	1	2.60	5.98	2-3	
3606.38	P	⊙	2.55	5.97	4-4	
m3622.00	P	Fe	2.58	5.98	3-3	
3644.58	P	⊙	2.58	5.96	3-2	$b^3F-x^3P^o$ (235)
3562.60	P	⊙	2.55	6.01	4-4	$b^3F-y^1G^o$
3592.486	U	(1)	2.58	6.01	3-4	(237)
3511.748	U	(1)	2.55	6.06	4-4	$b^3F-w^3F^o$
m3524.04	P	Fe	2.58	6.08	3-3	(238)
3520.85	W	(1)	2.60	6.10	2-2	
3495.285	G	8	2.55	6.08	4-3	
3500.564	G	2	2.58	6.10	3-2	
3508.52	W	(1)	2.55	6.07	4-3	$b^3F-v^3D^o$
3524.075	J	3	2.58	6.08	3-2	(239)
3537.729	J	3	2.60	6.09	2-1	
*3537.491§	J	1	2.58	6.07	3-3	
3544.631	U	(2)	2.60	6.08	2-2	
3558.21	P	⊙	2.60	8.07	2-3	
3526.016	V	1	2.58	6.08	3-3	b^3F-3° (240)
m3451.66	P	Fe	2.55	6.12	4-5	$b^3F-y^3H^o$
3464.914	V	(1)	2.58	6.14	3-4	(241)
3468.849	V	4	2.55	8.11	4-5	$b^3F-v^3G^o$
3478.853	J	(2)	2.58	6.13	3-4	(242)
3469.834	V	2	2.60	6.15	2-3	
3448.889	V	(1)	2.55	6.13	4-4	
3450.14	P	⊙	2.58	6.15	3-3	
3515.41	P	⊙	2.60	6.11	2-2	$b^3F-z^1D^o$ (243)
3410.56	P	⊙	2.58	8.20	3-2	$b^3F-w^3P^o$
3446.791	V	(1)	2.80	6.18	2-1	(244)
3429.80	P	⊙	2.60	6.20	2-2	
3384.839	V	(1)	2.58	6.24	3-3	$b^3F-z^1F^o$
3383.387	V	(1)	2.60	6.24	2-3?	(245)
3335.403	V	(1)	2.55	8.25	4-4	$b^3F-x^1G^o$ (246)
3252.12	P	⊙	2.55	8.34	4-4	$b^3F-u^5F^o$
3227.17	P	⊙	2.55	8.37	4-3	(247)
3229.78 ?	W	(1)	2.58	6.40	3-2	
3285.54	P	⊙	2.55	6.30	4-5	$b^3F-x^3H^o$ (248)
3254.281	V	(1)	2.55	8.34	4-3	$b^3F-t^5D^o$ (249)
3260.276	V	4	2.55	8.33	4-4	$b^3F-v^3F^o$
*3278.741	V	4	2.58	8.34	3-3	(250)
3314.450	V	(2)	2.80	8.32	2-2	
3253.839	V	(1)	2.55	8.34	4-3	
3298.467	U	(1)	2.58	6.32	3-2	
3252.928	V	4	2.55	6.34	4-5	$b^3F-u^3G^o$
3246.492	V	3	2.58	8.38	3-4	(252)
3249.204	V	3	2.55	8.35	4-4	b^3F-4° (253)
m3219.60	P	Fe	2.55	8.38	4-3	$b^3F-u^5P^o$
3217.53	P	⊙	2.58	8.41	3-2	(254)
3242.268	V	(1)	2.58	8.38	3-2	$b^3F-y^1D^o$ (255)
3237.234	V	(1)	2.58	8.39	3-2	b^3F-7° (258)

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3253.954	V	(2)	2.60	6.39	2-2	$b^3F-x^1D^o$ (257)
3191.11	W	(1)	2.55	6.42	4-3	$b^3F-u^3D^o$
3181.522	G	4	2.58	6.46	3-2	(258)
3176.366	V	2	2.60	6.48	2-1	
3198.266	U	(1)	2.60	6.46	2-2	
3232.16	P	⊙	2.60	6.42	2-3	
3166.435	G	6	2.55	6.45	4-3	$b^3F-t^3D^o$
3190.02	W	(1)	2.58	6.45	3-3	(259)
3159.25	P	⊙	2.60	6.50	2-2	
3126.84	P	⊙	2.55	6.50	4-5	$b^3F-w^3H^o$
3111.688	U	(2)	2.55	6.51	4-4	(260)
3093.888	V	(2 1d)	2.55	6.54	4-3	$b^3F-s^3D^o$
3116.39	P	⊙	2.58	6.54	3-3	(261)
3052.78	P	⊙	2.55	6.59	4-3	$b^3F-t^5P^o$
3007.75	P	⊙	2.58	6.68	3-2	(262)
3018.25	P	⊙	2.55	6.64	4-3	$b^3F-x^1F^o$
3054.949	S	(-)	2.60	6.64	2-3	(263)
10432.99	D	0	2.68	3.86	5-4	$a^3G-z^3F^o$
10195.11	F	2	2.72	3.93	4-3	(264)
10113.86	F	2	2.75	3.97	3-2	
8345.20	P	⊙	2.68	4.16	5-5	$a^3G-y^5F^o$
8303.11	P	⊙	2.72	4.20	4-4	(265)
8112.17	P	⊙	2.68	4.20	5-4	
8108.33	P	⊙	2.72	4.24	4-3	
8129.32	P	⊙	2.75	4.26	3-2	
7650.95	P		2.68	4.29	5-5	$a^3G-z^5G^o$
7540.44	P	⊙	2.72	4.35	4-4	(266)
7481.74	P	⊙	2.75	4.40	3-3	
7382.63	P	⊙	2.68	4.35	5-4	
7344.18	P	⊙	2.72	4.40	4-3	
7347.16	P	⊙	2.75	4.43	3-2	
7316.77	P	⊙	2.68	4.37	5-5	$a^3G-z^3G^o$
7261.00	P	⊙	2.72	4.42	4-4	(287)
7228.70	O	1	2.75	4.45	3-3	
7114.55	P	⊙	2.68	4.42	5-4	
7100.20	P	⊙?	2.72	4.45	4-3	
7471.75	P	⊙	2.72	4.37	4-5	
6677.993	B	600	2.68	4.53	5-4	$a^3G-y^3F^o$
6592.919	B	300	2.72	4.59	4-3	(268)
6546.245	B	200	2.75	4.63	3-2	
6806.851	L	10	2.72	4.53	4-4	
6703.573	L	10	2.75	4.59	3-3	
6180.216	V	(2)	2.72	4.71	4-3	$a^3G-y^3D^o$
6085.267	V	(1)	2.75	4.77	3-2	(269)
5391.78	P	⊙	2.68	4.97	5-5	$a^3G-x^5F^o$ (270)
4432.90	P	⊙	2.72	5.50	4-3	$a^3G-v^5D^o$
4460.12	P	⊙	2.75	5.51	3-2	(271)
4305.13	P	⊙	2.72	5.58	4-3	$a^3G-x^3D^o$
*4340.49	P	(1)	2.75	5.59	3-2	(272)
*4239.847	J	2	2.68	5.59	5-5	$a^3G-y^3G^o$
4266.968	J	3	2.72	5.61	4-4	(273)
4288.148	J	(2)	2.75	5.62	3-3	
4215.975	V	(1)	2.68	5.61	5-4	
4242.588	V	(1)	2.72	5.62	4-3	
m4291.44	P	Fe	2.72	5.59	4-5	
4313.04	P	⊙	2.75	5.61	3-4	
4184.22	U	(1)	2.68	5.63	5-8	$a^3G-x^5G^o$
4213.42	P	⊙	2.72	5.64	4-5	(274)
4239.01	P	⊙	2.75	5.68	3-4	
*4163.676	V	(1)	2.68	5.64	5-5	
4194.50	P	⊙	2.72	5.68	4-4	
4224.83	P	⊙	2.75	5.87	3-3	
4145.209	V	(1)	2.68	5.66	5-4	
4180.41	P	⊙	2.72	5.87	4-3	
*4215.430	J	2	2.75	5.67	3-2	
4112.17	P	⊙	2.68	5.68	5-6	$a^3G-z^3I^o$ (275)
3998.054	I	10	2.68	5.77	5-4	$a^3G-u^5D^o$
4039.94	W	(1)	2.72	5.77	4-3	(276)
*4043.901	V	5n	2.72	5.77	4-4	
4085.28	P	⊙	2.75	5.77	3-4	
3971.325	I	9	2.68	5.79	5-4	$a^3G-x^3F^o$
3983.980	I	10	2.72	5.81	4-3	(277)
4007.277	J	6	2.75	5.83	3-2	
4016.54	W	(1)	2.72	5.79	4-4	
4024.109	J	(1)	2.75	5.81	3-3	
4057.358	V	2	2.75	5.79	3-4	
3958.681	B	12	2.88	5.80	5-8	$a^3G-z^3H^o$
3997.394	I	15	2.72	5.80	4-5	(278)
4021.869	I	12	2.75	5.82	3-4	
3952.606	I	8	2.68	5.80	5-5	
3981.775	J	7	2.72	5.82	4-4	
3937.329	J	3	2.88	5.82	5-4	
3995.998	J	4	2.72	5.80	4-3	$a^3G-w^3D^o$
4017.096	V	(1)	2.75	5.82	3-2	(279)
4038.37	P	⊙	2.75	5.80	3-3	
3897.896	J	8	2.68	5.85	5-8	$a^3G-w^5G^o$
*3932.829	J	4	2.72	5.85	4-5	(280)
3945.119	J	4	2.75	5.87	3-4	
3929.114	J	(1)	2.75	5.89	3-3	
3883.745	V	2	2.68	5.87	5-4	
3890.844	J	2	2.72	5.89	4-3	
3907.937	B	4	2.75	5.90	3-2	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3971.82	W	(1)	2.75	5.85	3-2	a^3G-1° (281)
3884.359	J	3	2.68	5.86	5-4	$a^3G-z^1G^o$
3927.61	P	⊙	2.72	5.86	4-4	(282)
*3966.630	J	10n	2.75	5.86	3-4	
*3861.341	J	2	2.68	5.88	5-5	$a^3G-v^5F^o$
3855.329	V	(1w)	2.72	5.92	4-4	(283)
3813.638	J	2	2.68	5.92	5-4	
3826.836	J	1	2.72	5.94	4-3	
3892.898	V	(1)	2.75	5.92	3-4	
3827.572	J	1	2.68	5.91	5-5	$a^3G-x^3G^o$
3872.923	V	1	2.72	5.90	4-4	(284)
3907.464	J	(1)	2.75	5.91	3-3	
3830.850	J	1	2.68	5.90	5-4	
3869.590	V	3•	2.72	5.91	4-3	
3869.562	K	3•	2.72	5.91	4-5	
3910.845	J	(3)	2.75	5.90	3-4	
3770.305	V	3•	2.68	5.95	5-5	$a^3G-w^3G^o$
3792.156	J	2	2.72	5.97	4-4	(287)
3811.892	J	2	2.75	5.98	3-3	
3751.820	J	(1)	2.68	5.97	5-4	
3775.860	J	(1)	2.72	5.98	4-3	
*3811.05	U	(1)	2.72	5.95	4-5	
3828.510	V	(1n)	2.75	5.97	3-4	
3748.91	P	⊙	2.68	5.97	5-5	$a^3G-z^1H^o$
3789.178	J	3	2.72	5.97	4-5	(289)
3704.463	B	10	2.68	6.01	5-4	$a^3G-y^1G^o$
3743.78	P	(0)	2.72	6.01	4-4	(290)
3779.213	U	(1)	2.75	6.01	3-4	
3649.508	B	12	2.68	6.06	5-4	$a^3G-w^3F^o$
3669.523	B	10	2.72	6.08	4-3	(291)
3677.630	B	12	2.75	6.10	3-2	
3687.656	J	4	2.72	6.06	4-4	
*3703.556	J	5	2.75	6.08	3-3	
3722.028	J	(1)	2.75	6.06	3-4	
3684.108	G	15	2.72	6.07	4-3	$a^3G-v^3D^o$
*3703.556	J	5	2.75	6.08	3-2	(292)
3718.407	J	3	2.75	6.07	3-3	
3705.71	P	⊙	2.75	6.08	3-3	a^3G-3° (293)
3606.679	G	20	2.68	6.10	5-6	$a^3G-y^3H^o$
3621.463	B	15	2.72	6.12	4-5	(294)
3638.296	G	12	2.75	6.14	3-4	
3584.663	B	8	2.68	6.12	5-5	
3605.450	G	15	2.72	6.14	4-4	
3568.977	J	4	2.68	6.14	5-4	
3603.205	G	10	2.68	6.11	5-5	$a^3G-v^3G^o$
*3618.392	J	2	2.72	6.13	4-4	(295)
3622.001	G	12	2.75	6.15	3-3	
3581.645	J	1	2.68	6.13	5-4	
3589.456	G	3	2.72	6.15	4-3	
3640.388	G	15	2.72	6.11	4-5	
3651.469	B	20	2.75	6.13	3-4	
3527.90	P	⊙	2.75	6.24	3-3	$a^3G-z^1F^o$ (296)
3459.429	V	(2)	2.68	6.25	5-4	$a^3G-x^1G^o$
3493.69	W	(2)	2.72	6.25	4-4	(297)
3411.88	P	⊙	2.68	6.30	5-5	$a^3G-u^5F^o$ (298)
3411.134	V	(1)	2.68	6.30	5-6	$a^3G-x^3H^o$
3439.050	V	(1)	2.72	6.30	4-5	(299)
3405.83	W	(2)	2.68	6.30	5-5	
3404.923	U	(1)	2.68	6.31	5-4	$a^3G-t^5D^o$
3404.755	V	(1)	2.72	6.34	4-3	(300)
3438.10	P	⊙	2.72	6.31	4-4	
3434.039	V	(1w)	2.75	6.34	3-3	
3378.678	G	6	2.68	6.33	5-4	$a^3G-v^3F^o$
*3404.301	V	3	2.72	6.34	4-3	(301)
3453.022	J	(2)	2.75	6.32	3-2	
3411.353	G	3	2.72	6.33	4-4	
3440.74	P	⊙	2.75	6.33	3-4	
3366.790	V	5	2.68	6.35	5-4	a^3G-4°
3399.230	V	(1)	2.72	6.35	4-4	(302)
3428.41	P	⊙?	2.75	6.35	3-4	
3341.906	G	5	2.68	6.37	5-5	a^3G-6°
3373.874	V	(1)	2.72	6.37	4-5	(303)
3370.786	A	10	2.68	6.34	5-5	$a^3G-u^3G^o$
3389.549	G	8	2.72	6.38	4-4	(304)
3380.111	C	8	2.75	6.40	3-3	
3337.866	C	6	2.68	6.38	5-4	
3351.750	V	3	2.72	6.40	4-3	
3403.299	U	(2)	2.72	6.34	4-5	
3398.226	V	(1)	2.75	6.38	3-4	
*3393.609	V	(1w)	2.75	8.38	3-2	$a^3G-y^1D^o$ (305)
3387.410	V	2	2.75	6.39	3-2	$a^3G-x^1D^o$ (306)
3335.72	P	⊙?	2.72	8.42	4-3	$a^3G-u^3D^o$
3363.815	V	(1)	2.75	6.42	3-3	(307)
3254.734	V	(2)	2.68	6.47	5-6	$a^3G-w^3H^o$
3265.55	P	⊙	2.72	6.50	4-5	(308)
3275.685	V	(1)	2.75	6.51	3-4	
3235.592	U	(1)	2.68	6.50	5-5	
3249.037	V	(1)	2.72	8.51	4-4	
3219.37	P	⊙	2.68	8.51	5-4	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
m3246.05	P	Fe	2.68	6.48	5-6	$a^3G-y^3I^o$
3235.33	P	⊙	2.72	6.53	4-5	(309)
•3162.335	U	2n	2.68	6.58	5-4	a^3G-9°
						(310)
3151.353	G	10	2.72	6.63	4-5	$a^3G-y^1H^o$
						(311)
3172.30	P	⊙	2.75	6.64	3-3	$a^3G-x^1F^o$
						(312)
3098.191	V	6	2.68	6.66	5-5	$a^3G-t^3G^o$
3101.003	V	(2)	2.72	6.70	4-4	(313)
3090.209	V	(1)	2.75	8.74	3-3	
3073.982	V	(1)	2.68	6.70	5-4	
3066.487	V	3	2.72	6.74	4-3	
3095.270	V	(2)	2.68	6.67	5-5	a^3G-12°
3122.665	R	(-)	2.72	6.67	4-5	(314)
3067.952	V	(1)	2.68	6.70	5-4	a^3G-13°
3094.870	U	(1)	2.72	6.70	4-4	(315a)
3119.04	P	⊙	2.75	6.70	3-4	
3046.819	S	(-)	2.72	6.77	4-4	$a^3G-w^1G^o$
						(315)
2959.992	C	10	2.68	6.85	5-6	$a^3G-v^3H^o$
2990.392	C	6	2.72	6.84	4-5	(316)
3011.482	G	7	2.75	6.84	3-4	
m2965.25	P	Fe	2.68	6.84	5-5	
2988.942	S	(-)	2.72	6.84	4-4	
2980.532	G	5	2.75	6.89	3-3	$a^3G-w^1F^o$
						(317)
4957.603	I	60	2.80	5.29	6-5	$z^7F^o-e^7D$
4920.509	I	60	2.82	5.33	5-4	(318)
4891.496	I	50	2.84	5.36	4-3	
4871.323	I	25	2.85	5.39	3-2	
4859.748	B	15	2.86	5.40	2-1	
5006.126	I	20	2.82	5.29	5-5	
4957.302	J	20	2.84	5.33	4-4	
4918.999	B	30	2.85	5.36	3-3	
4890.782	J	25	2.88	5.39	2-2	
4872.144	I	20	2.87	5.40	1-1	
5044.221	T	(2)	2.84	5.29	4-5	
4985.553	J	7	2.85	5.33	3-4	
4938.820	J	10	2.86	5.36	2-3	
4903.317	B	12	2.87	5.39	1-2	
4878.218	B	12	2.87	5.40	0-1	
•4579.344	V	(1)	2.82	5.52	5-4	$z^7F^o-e^5D$
4611.19	P	⊙	2.84	5.52	4-4	(319)
4554.467	V	(1)	2.85	5.56	3-3	
4515.17	P	(1)	2.86	5.60	2-2	
4490.24	P	⊙	2.87	5.62	1-1	
4635.62	P	⊙	2.85	5.52	3-4	
4571.44	P	⊙	2.86	5.56	2-3	
4525.875	V	(1)	2.87	5.60	1-2	
•4495.386	V	(1)	2.87	5.62	0-1	
4104.77	P		2.80	5.80	6-5	$z^7F^o-e^5F$
•4010.77	W	(1)	2.85	5.93	3-2	(320)
3994.27	P	⊙	2.86	5.95	2-1	
4137.97	P	⊙	2.82	5.80	5-5	
4100.35	P	⊙	2.84	5.85	4-4	
4056.53	U	(1)	2.85	5.90	3-3	
•4002.665	V	(1)	2.87	5.95	1-1	
4119.86	P	⊙	2.85	5.85	3-4	
4032.46	W	(1)	2.87	5.93	1-2	
4008.768	V	(1w)	2.87	5.95	0-1	
3610.159	G	20	2.80	6.21	6-6	$z^7F^o-e^7F$
3571.995	G	6	2.82	6.28	5-5	(321)
3545.639	G	5	2.84	6.32	4-4	
•3565.583	J	3	2.85	6.31	3-3	
3552.828	G	3	2.86	6.34	2-2	
3575.11	W	(1)	2.87	6.32	1-1	
•3547.203	J	(2)	2.80	6.28	6-5	
3528.78	P		2.82	6.32	5-4	
3551.11	P	⊙	2.84	6.31	4-3	
3542.56	P	⊙	2.85	6.34	3-2	
3568.423	U	(1)	2.86	6.32	2-1	
3635.82	P	⊙	2.82	6.21	5-6	
3591.345	U	(1)	2.84	6.28	4-5	
3580.07	P	⊙	2.85	6.32	3-4	
•3575.978	G	2	2.86	6.31	2-3	
3559.45	P	⊙	2.87	8.34	1-2	
3578.380	U	(1)	2.87	8.32	0-1	
m3605.50	P	Fe	2.80	8.22	6-5	$z^7F^o-f^7D$
3575.249	J	2	2.82	6.27	5-4	(322)
3587.69	P		2.84	6.28	4-3	
3584.790	J	1	2.85	6.30	3-2	
3588.918	J	2	2.86	8.30	2-1	
3631.103	J	7	2.82	6.22	5-5	
3594.632	G	8	2.84	6.27	4-4	
3602.46	W	2	2.85	6.28	3-3	
3595.294	V	2	2.88	6.30	2-2	
3595.66	U	(1)	2.87	6.30	1-1	
•3851.10	W	(1)	2.84	8.22	4-5	
3809.46	P	⊙	2.85	6.27	3-4	
3813.08	P	⊙?	2.88	8.28	2-3	
3602.10	W	1	2.87	8.30	1-2	
3598.98	W	(1)	2.87	6.30	0-1	
3825.140	G	6	2.82	6.22	5-4	$z^7F^o-f^5D$
3830.353	J	4	2.84	6.24	4-3	(323)
3823.772	U	2	2.85	8.26	3-2	
3810.703	J	2	2.88	6.28	2-1	
3604.383	U	(1)	2.87	8.29	1-0	
•3845.090	V	2	2.84	8.22	4-4	
•3845.494	V	1	2.85	6.24	3-3	
3834.52	P	⊙	2.86	6.26	2-2	
3817.53	P		2.87	8.28	1-1	
3860.33	W	(1)	2.85	8.22	3-4	
3658.35	P	⊙	2.86	6.24	2-3	
3841.45	P	⊙	2.87	8.26	1-2	
3820.33	P	⊙	2.87	8.28	0-1	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3618.30	P	⊙	2.82	6.23	5-4	$z^7F^o-e^7P$
3620.23	W	(1)	2.84	6.25	4-3	(324)
•3602.534	G	3	2.85	6.28	3-2	
3638.16	P	⊙	2.84	6.23	4-4	
3635.28	P		2.85	6.25	3-3	
3613.15	W	(1)	2.88	6.28	2-2	
3653.35	P	⊙	2.85	6.23	3-4	
3646.10	P	⊙	2.86	6.25	2-3	
3620.00	P		2.87	8.28	1-2	
3586.75	P	(2)	2.80	6.24	6-6	$z^7F^o-e^5G$
3588.615	G	3	2.82	8.26	5-5	(325)
3572.60	U	(1)	2.84	6.29	4-4	
3558.68	W	(1)	2.85	6.32	3-3	
3563.61	P	⊙	2.80	6.26	6-5	
3612.068	G	8	2.82	6.24	5-6	
•3608.146	J	3	2.84	6.26	4-5	
3587.253	V	2	2.85	6.29	3-4	
3567.045	V	2	2.86	8.32	2-3	
3554.50	W	2	2.87	6.34	1-2	
3570.243	V	20	2.80	6.25	6-7	$z^7F^o-e^7G$
3554.922	G	40	2.82	6.29	5-6	(328)
3541.083	G	15	2.84	6.32	4-5	
3542.076	G	15	2.85	6.34	3-4	
3536.556	G	15	2.86	6.35	2-3	
3533.201	G	10	2.87	8.36	1-2	
3533.008	J	5	2.87	6.37	0-1	
3530.385	G	2	2.80	6.29	6-6	
3522.268	G	(3)	2.82	6.32	5-5	
3527.792	G	4	2.84	6.34	4-4	
3526.377	J	4	2.85	6.35	3-3	
3526.673	J	5	2.86	6.36	2-2	
3529.818	G	6	2.87	6.37	1-1	
3498.18	P	⊙	2.80	6.32	6-5	
3509.12	W	(1)	2.82	6.34	5-4	
3512.239	U	(1)	2.84	6.35	4-3	
3516.55	W	(1)	2.85	6.36	3-2	
3523.30	W	(1)	2.86	6.37	2-1	
3513.59	P	⊙	2.80	6.31	6-5	$z^7F^o-f^5F$
3493.57	P	⊙	2.82	6.35	5-4	(327)
3537.898	J	4	2.82	6.31	5-5	
3512.08	W	(1)	2.84	6.35	4-4	
3506.23	W	(1)	2.86	6.38	2-2	
3506.58	P	⊙	2.87	6.39	1-1	
3556.877	G	7	2.84	6.31	4-5	
3526.23	W	(3)	2.85	6.35	3-4	
3518.68	W	(1)	2.86	6.37	2-3	
m3512.68	P	Co	2.87	6.38	1-2	
3509.73	P	⊙	2.87	6.39	0-1	
•3565.583	J	3	2.85	6.31	3-2	$z^7F^o-e^5S$
•3575.976	G	2	2.86	6.31	2-2	(328)
3582.69	W	(2)	2.87	6.31	1-2	
3525.856	U	(1)	2.84	6.34	4-4	$z^7F^o-g^5D$
3540.121	G	3	2.85	6.34	3-4	(329)
3512.80	P	⊙	2.85	6.37	3-3	$z^7F^o-e^7S$
3522.896	U	(1)	2.86	6.37	2-3	(330)
3490.04	P	⊙?	2.86	6.40	2-3	$z^7F^o-e^5P$
						(331)
3215.637	V	(3)	2.82	6.63	5-5	$z^7F^o-e^3G$
						(332)
•3209.297	G	6	2.80	6.64	6-5	$z^7F^o-g^7D$
3196.147	V	2	2.82	6.68	5-4	(333)
•3182.076	V	3	2.84	6.72	4-3	
3173.608	U	(1)	2.85	6.74	3-2	
3181.85	W	(3)	2.88	6.74	2-2	
3173.40	W	(1)	2.87	6.76	1-1	
3187.16	P	⊙	2.87	6.74	1-2	
3175.97	W	(1)	2.87	6.76	0-1	
2976.922	U	(1)	2.82	6.97	5-5	z^7F^o-1 †
2990.33	P	⊙	2.84	6.97	4-5	(334)
2974.78	W	(1)	2.82	6.97	5-	z^7F^o-2
						(335)
11149.34	D	2	2.82	3.93	2-3	$b^3P-z^3F^o$
10881.85	D	1	2.83	3.97	1-2	(338)
11783.28	D	6	2.82	3.87	2-3	$b^3P-z^3D^o$
11439.06	D	15	2.83	3.91	1-2	(337)
11251.09	D	3	2.85	3.94	0-1	
11298.83	D	3	2.82	3.91	2-2	
11119.80	D	10	2.83	3.94	1-1	
10987.22	P	⊙	2.82	3.94	2-1	
9370.57	P		2.82	4.14	2-3	$b^3P-y^5D^o$
9210.030	E	6	2.83	4.17	1-2	(338)
9117.10	F	2	2.85	4.20	0-1	
9118.888	E	25	2.82	4.17	2-2	
9030.67	F	1	2.83	4.20	1-1	
8943.00	F	2	2.82	4.20	2-1	
8946.25	F	1	2.83	4.21	1-0	
8999.561	E	200	2.82	4.19	2-2	$b^3P-z^3P^o$
8757.192	E	25	2.83	4.24	1-1	(339)
8874.751	E	80	2.82	4.24	2-1	
8611.807	E	40	2.83	4.27	1-0	
9088.326	E	50	2.83	4.19	1-2	
8838.433	E	30	2.85	4.24	0-1	
6979.17	P	⊙	2.82	4.59	2-3	$b^3P-y^3F^o$
6859.49	P	⊙	2.83	4.63	1-2	(340)
6808.80	P	⊙	2.82	4.63	2-2	
6912.43	P	⊙	2.83	4.62	1-1	$b^3P-y^5P^o$
6860.96	P	1	2.82	4.62	2-1	(341)
6518.376	I	20	2.82	4.71	2-3	$b^3P-y^3D^o$
6355.039	I	4	2.83	4.77	1-2	(342)
6270.238	J	(2)	2.85	4.81	0-1	
6311.508	V	(1)	2.82	4.77	2-2	
6229.234	V	(1)	2.83	4.81	1-1	
6187.41	P	⊙	2.82	4.81	2-1	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5835.58	P	⊙	2.82	4.93	2-3	$b^3P-x^5D^o$
5747.85	P	⊙	2.82	4.97	2-2	(343)
5552.85	P	⊙	2.82	5.04	2-3	$b^3P-x^5F^o$
5532.13	P		2.83	5.06	1-2	(344)
5529.80	P	⊙	2.85	5.08	0-1	
5536.59	P	⊙	2.82	5.05	2-2	$b^3P-z^5S^o$
5570.06	P	⊙	2.83	5.05	1-2	(345)
4741.533	B	3	2.82	5.42	2-3	$b^3P-w^5D^o$
4707.487	J	(2)	2.83	5.45	1-2	(346)
4680.475	V	(1)	2.85	5.48	0-1	
4683.565	J	(2)	2.82	5.45	2-2	
4657.598	V	(1)	2.83	5.48	1-1	
4687.387	J	(1)	2.82	5.45	2-3	$b^3P-w^5F^o$
4885.03	P	⊙	2.83	5.47	1-2	(347)
4687.67	P	⊙	2.85	5.48	0-1	
4661.33	P	⊙	2.82	5.47	2-2	
4664.71	P		2.83	5.48	1-1	
4641.22	P	⊙	2.82	5.48	2-1	
4604.23	P	⊙	2.82	5.50	2-3	$b^3P-v^5D^o$
4603.34	P	⊙	2.83	5.51	1-2	(348)
4605.10	P	⊙	2.85	5.53	0-1	
4580.46	P		2.82	5.51	2-2	
4582.941	U	(1)	2.83	5.53	1-1	
4612.64	P	⊙	2.82	5.49	2-2	$b^3P-y^5S^o$
4635.846	J	(1)	2.83	5.49	1-2	(349)
4466.554	B	12	2.82	5.58	2-3	$b^3P-x^3D^o$
4476.021	I	10	2.83	5.59	1-2	(350)
4443.197	B	7	2.85	5.62	0-1	
4454.383	B	5	2.82	5.59	2-2	
4422.570	B	6	2.83	5.62	1-1	
4401.447	V	(2)	2.82	5.62	2-1	
4290.870	J	(1)	2.82	5.70	2-3	$b^3P-w^5P^o$
4278.38	P		2.83	5.72	1-2	(351)
4279.864	J	(1)	2.85	5.73	0-1	
4258.619	J	(1)	2.82	5.72	2-2	
4260.73	P	⊙	2.83	5.73	1-1	
4241.112	V	(1)	2.82	5.73	2-1	
4207.130	J	4	2.82	5.75	2-1	$b^3P-z^3S^o$
4226.426	J	3	2.83	5.75	1-1	(352)
4245.258	I	6	2.85	5.75	0-1	
4181.758	J	15	2.82	5.77	2-3	$b^3P-u^5D^o$
4175.640	B	10	2.83	5.79	1-2	(354)
m4143.83	P	Fe	2.85	5.82	0-1	
4156.803	B	12	2.82	5.79	2-2	
4125.884	J	(2)	2.83	5.82	1-1	
4107.492	B	12	2.82	5.82	2-1	
4126.88	U	(1)	2.83	5.82	1-0	
4184.895	B	10	2.82	5.77	2-2	$b^3P-y^3P^o$
4173.322	J	2	2.83	5.79	1-1	(355)
4154.502	J	12	2.82	5.79	2-1	
4213.650	B	5	2.83	5.76	1-0	
4203.987	B	10	2.83	5.77	1-2	
4191.685	J	(2)	2.85	5.79	0-1	
4121.806	B	5	2.82	5.81	2-3	$b^3P-x^3F^o$
4122.522	J	4	2.83	5.83	1-2	(356)
•4104.132	K	3	2.82	5.83	2-2	
4134.681	B	12	2.82	5.80	2-3	$b^3P-w^3D^o$
4132.903	J	8	2.83	5.82	1-2	(357)
4127.612	B	7	2.85	5.84	0-1	
4114.449	B	5	2.82	5.82	2-2	
4109.808	J	9	2.83	5.84	1-1	
4091.561	J	(1)	2.82	5.84	2-1	
4066.979	B	6	2.82	5.85	2-2	b^3P-1°
4085.011	J	4	2.83	5.85	1-2	(358)
4044.614	J	6	2.82	5.87	2-1	$b^3P-y^3S^o$
4062.446	J	10	2.83	5.87	1-1	(359)
4079.848	J	4	2.85	5.87	0-1	
4000.02	W	(1)	2.82	5.90	2-2	$b^3P-w^5G^o$
						(360)
3978.466	V	(1)	2.82	5.92	2-3	$b^3P-v^5P^o$
3964.522	J	3	2.83	5.95	1-2	(361)
3961.147	J	(2)	2.85	5.96	0-1	
•3947.533	J	5	2.82	5.95	2-2	
3944.748	J	(2)	2.83	5.96	1-1	
m3927.93	P	Fe	2.82	5.96	2-1	
3953.863	V	(1)	2.82	5.94	2-3	$b^3P-v^5F^o$
3952.704	V	(1)	2.83	5.96	1-2	(362)
3935.815	B	8	2.82	5.96	2-2	
3935.31	W	(2)	2.83	5.97	1-1	
3918.58	P	⊙	2.82	5.97	2-1	
3925.646	J	4	2.82	5.96	2-2	$b^3P-x^3P^o$
3909.830	J	3	2.83	5.99	1-1	(364)
3893.316	V	(1)	2.82	5.99	2-1	
3918.418	J	4	2.83	5.98	1-0	
3942.443	B	6	2.83	5.96	1-2	
3925.946	J	6	2.85	5.99	0-1	
•3829.458	V	1	2.83	6.06	1-2	b^3P-2°
						(366)
3801.681	J	3	2.82	6.07	2-3	$b^3P-v^3D^o$
3801.804	J	1	2.83	6.08	1-2	(367)
3809.043	V	(1)	2.85	6.09	0-1	
3786.176	J	4	2.82	6.08	2-2	
3793.872	J	1	2.83	6.09	1-1	
3778.320	U	(1)	2.82	6.09	2-1	
3768.23	W	(1)	2.83	6.11	1-2	$b^3P-z^1D^o$
						(368)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Fe I continued						
3655.465	J	4	2.62	6.20	2-2	$b^3P-w^3P^\circ$
*3689.457	G	12	2.63	6.18	1-1	(369)
3674.766	J	2	2.82	6.16	2-1	
3702.033	J	3	2.63	6.17	1-0	
3670.035	V	3	2.63	6.20	1-2	
3703.824	J	3	2.65	6.18	0-1	
3602.77	P	⊙?	2.62	6.24	2-3	$b^3P-z^1F^\circ$
						(370)
3504.455	U	(1)	2.62	6.34	2-3	$b^3P-v^3F^\circ$
						(371)
3448.766	V	(1)	2.62	6.40	2-3	$b^3P-u^3G^\circ$
						(372)
3462.608	V	(1)	2.62	6.36	2-2	$b^3P-y^1D^\circ$
*3475.667	V	(1)	2.83	6.36	1-2	(373)
*3457.090	V	(3w)	2.62	6.39	2-2	b^3P-7°
						(374)
3469.390	V	(1)	2.63	6.39	1-2	$b^3P-x^1D^\circ$
						(375)
*3431.615	J	3	2.62	6.42	2-3	$b^3P-u^3D^\circ$
3406.17	P	⊙	2.63	6.46	1-2	(376)
3393.362	V	(1)	2.85	6.48	0-1	
*3393.609	V	(1w)	2.82	6.46	2-2	
*3381.340	V	(2)	2.83	6.48	1-1	
3368.983	V	(1)	2.62	6.46	2-1	
3403.29	P		2.62	6.45	2-3	$b^3P-t^3D^\circ$
3361.959	V	(1)	2.63	6.50	1-2	(377)
3432.023	V	(1)	2.85	6.44	0-1?	
3349.739	V	(1)	2.62	6.50	2-2	
3419.706	V	(1)	2.83	6.44	1-1?	
3407.06	P	⊙?	2.62	6.44	2-1?	
3342.298	V	4	2.83	6.53	1-1	b^3P-6°
3354.068	V	3	2.85	6.53	0-1	(376)
3323.737	C	7	2.62	6.53	2-2	$b^3P-v^3P^\circ$
3239.35	P		2.63	6.64	1-1	(379)
3228.003	V	(2)	2.62	6.64	2-1	
3335.776	V	4	2.83	6.53	1-2	
*3250.400	V	(2)	2.65	6.64	0-1	
3289.442	V	(2)	2.82	6.57	2-1	$b^3P-z^1P^\circ$
3301.227	V	(2)	2.63	6.57	1-1	(360)
*3243.406	V	3	2.82	6.62	2-3	$b^3P-y^1F^\circ$
						(361)
3207.649	V	(1w)	2.82	6.67	2-3	b^3P-11°
						(382)
3047.301	S	(-)	2.63	6.68	1-2	$b^3P-w^1D^\circ$
						(382a)
5232.946	I	40	2.93	5.29	4-5	$z^7P^\circ-e^7D$
5266.562	I	30	2.99	5.33	3-4	(363)
5261.796	I	10	3.03	5.36	2-3	
5139.468	J	20	2.93	5.33	4-4	
5192.350	I	30	2.99	5.36	3-3	
5226.666	J	15	3.03	5.39	2-2	
5068.774	J	10	2.93	5.36	4-3	
5139.260	J	10	2.99	5.39	3-2	
5191.460	J	20	3.03	5.40	2-1	
4768.397	V	3n	2.93	5.52	4-4	$z^7P^\circ-e^5D$
4787.84	V	(1)	2.99	5.56	3-3	(364)
4800.14	V	(1)	3.03	5.60	2-2	
4682.58	W	(1)	2.93	5.56	4-3	
4726.165	V	(1)	2.99	5.60	3-2	
4760.07	P	⊙	3.03	5.62	2-1	
4677.61	P	⊙	2.99	5.52	3-4	
4863.76	P	⊙	3.03	5.56	2-3	
3685.998	G	15n	2.93	6.28	4-5	$z^7P^\circ-e^7F$
3701.086	G	20	2.99	8.32	3-4	(385)
*3752.420	J	1w	3.03	6.31	2-3	
3637.662	J	3n	2.93	6.32	4-4	
*3707.048	I	8	2.99	6.31	3-3	
3726.927	J	6	3.03	6.34	2-2	
3643.627	J	2	2.93	6.31	4-3	
3882.17	P	⊙	2.99	6.34	3-2	
3744.105	J	4	3.03	6.32	2-1	
3748.969	J	5	2.93	6.22	4-5	$z^7P^\circ-f^7D$
3754.506	J	1	2.99	6.27	3-4	(366)
3793.28	P		3.03	6.28	2-3	
*3689.457	G	12	2.93	6.27	4-4	
3746.931	J	6	2.99	6.26	3-3	
3773.899	J	1	3.03	6.30	2-2	
3682.15	P	⊙	2.93	6.26	4-3	
3727.609	J	3	2.99	6.30	3-2	
3768.665	V	1	3.03	6.30	2-1	
3742.821	J	4	2.93	6.22	4-4	$z^7P^\circ-f^5D$
3793.478	J	(1)	2.99	6.24	3-3	(367)
3816.92	P	⊙	3.03	6.26	2-2	
3727.096	J	4	2.93	6.24	4-3	
3769.995	V	4	2.99	6.26	3-2	
3790.858	J	(1)	3.03	8.28	2-1	
3735.325	J	6	2.93	6.23	4-4	$z^7P^\circ-e^7P$
3782.450	J	1	2.99	6.25	3-3	(368)
3793.354	V	1	3.03	6.28	2-2	
*3716.442	G	12	2.93	6.25	4-3	
3747.00	P	⊙	2.99	6.28	3-2	
3703.697	J	3	2.93	6.26	4-5	$z^7P^\circ-e^5G$
■3730.46	P	Co	2.99	6.29	3-4	(389)
3742.56	P	⊙	3.03	6.32	2-3	
*3668.24	W	1	2.93	6.29	4-4	
3697.428	G	6n	2.99	6.32	3-3	
3721.512	V	2	3.03	6.34	2-2	
3634.326	G	6n	2.93	6.32	4-3	
3678.879	V	(1)	2.99	6.34	3-2	
3633.07	P	(1)	2.93	6.32	4-5	$z^7P^\circ-e^7G$
3681.64	W	(1)	2.99	6.34	3-4	(390)
3709.03	P	⊙	3.03	6.35	2-3	
3664.69	W	(1)	2.99	6.35	3-3	
3602.70	P	⊙	2.93	6.35	4-3	
Fe I continued						
3649.70	P	⊙	2.93	6.31	4-5	$z^7P^\circ-f^5F$
3664.537	G	2	2.99	6.35	3-4	(391)
3669.37	P	⊙	3.03	6.37	2-3	
*3602.534	G	3	2.93	6.35	4-4	
*3645.494	V	1	2.99	6.37	3-3	
*3707.048	I	6	2.99	6.31	3-2	$z^7P^\circ-e^5S$
*3752.420	J	(1w)	3.03	6.31	2-2	(392)
3623.51	P	⊙	2.99	6.39	3-3	$z^7P^\circ-g^5D$
*3679.53	W	(1)	2.99	6.34	3-4	(393)
3666.85	P	⊙	3.03	6.39	2-3	
3566.52	P	⊙	2.93	6.37	4-3	$z^7P^\circ-e^7S$
3650.031	J	4	2.99	6.37	3-3	(394)
3694.005	G	20	3.03	6.37	2-3	
3554.44	P	⊙	2.93	6.40	4-3	$z^7P^\circ-e^5P$
*3564.960	J	4	2.99	6.43	3-2	(395)
3633.64	P	⊙	3.03	6.42	2-1	
3614.77	P		2.99	6.40	3-3	
3627.35	P	⊙	3.03	6.43	2-2	
3657.69	W	1	3.03	6.40	2-3	
3322.474	G	5n	2.93	6.64	4-5	$z^7P^\circ-g^7D$
3336.643	V	(3w)	2.99	6.68	3-4	(396)
3342.76	P	⊙	3.03	6.72	2-3	
3267.117	V	(1w)	2.93	6.68	4-4	
3306.703	S	(-)	2.99	6.72	3-3	
3320.600	V	(2n,gn)	3.03	6.74	2-2	
3285.20	U	(1)	2.99	6.74	3-2	
3256.52	P	⊙	2.99	6.77	3-2	$z^7P^\circ-e^3P$
3238.535	S	(-)	3.03	6.64	2-1	(397)
*3053.443	U	(2)	2.93	6.97	4-	$z^7P^\circ-2$
						(398)
10066.27	P	⊙?	2.94	4.16	5-5	$b^3G-y^5F^\circ$
						(399)
9036.64	P	⊙	2.94	4.30	5-6	$b^3G-z^3G^\circ$
9375.14	P		2.96	4.29	4-5	(400)
9156.23	P	⊙	3.00	4.35	3-4	
9089.413	E	30	2.94	4.29	5-5	
6975.408	E	10	2.96	4.35	4-4	
6666.42	F	3	3.00	4.40	3-3	
*8713.19	F	(10)	2.94	4.35	5-4	
6696.71	P	⊙	2.96	4.40	4-3	
6621.612	E	10	2.94	4.37	5-5	$b^3G-z^3G^\circ$
6562.267	E	15	2.96	4.42	4-4	(401)
6515.06	O	20	3.00	4.45	3-3	
8342.21	P	⊙?	2.94	4.42	5-4	
6356.53	P	⊙	2.96	4.45	4-3	
6676.26	P	⊙	2.96	4.37	4-5	
6747.32	F	2	3.00	4.42	3-4	
7748.281	E	125	2.94	4.53	5-4	$b^3G-y^3F^\circ$
7664.302	E	60	2.98	4.59	4-3	(402)
7583.796	E	50	3.00	4.63	3-2	
7954.94	P	⊙	2.96	4.53	4-4	
7904.12	P	⊙	2.96	4.54	4-3	$b^3G-y^5P^\circ$
7796.90	P	⊙	3.00	4.59	3-2	(403)
7112.176	I	3	2.96	4.71	4-3	$b^3G-y^3D^\circ$
6971.95	V	1	3.00	4.77	3-2	(404)
6310.543	U	(1)	2.94	4.69	5-4	$b^3G-x^5D^\circ$
6539.72	W	(2)	3.00	4.69	3-4?	(405)
5261.49	P	⊙	2.94	5.26	5-6	$b^3G-y^5G^\circ$
5226.42	P	⊙	2.94	5.30	5-5	(406)
5266.38	P	⊙	2.96	5.31	4-4	
5316.04	P	⊙	3.00	5.33	3-3	
5196.24	P	⊙	2.94	5.31	5-4	
*5326.154	V	(1)	3.00	5.32	3-4	$b^3G-z^5H^\circ$
5265.25	P	⊙?	3.00	5.35	3-3	(407)
5204.95	P	⊙?	2.98	5.35	4-3	
4773.52	P	⊙?	3.00	5.59	3-2	$b^3G-x^3D^\circ$
4767.50	P	⊙?	3.00	5.56	3-3	(408)
4647.437	B	6	2.94	5.59	5-5	$b^3G-y^3G^\circ$
4691.414	B	6	2.96	5.61	4-4	(409)
4710.286	B	5	3.00	5.62	3-3	
4616.765	J	(2)	2.94	5.61	5-4	
4661.975	J	(2)	2.96	5.62	4-3	
*4720.997	J	(1)	2.98	5.59	4-5	
4740.343	J	(1)	3.00	5.61	3-4	
4626.758	B	(-)	2.96	5.64	4-5	$b^3G-x^5G^\circ$
*4556.129	J	4n	2.94	5.64	5-5	(410)
4603.956	V	(1)	2.96	5.66	4-4	
4633.764	U	(1)	3.00	5.67	3-3	
4494.47	P	⊙	2.94	5.88	5-6	$b^3G-z^3I^\circ$
4472.57	P	⊙	2.94	5.70	5-5	(411)
4358.505	B	3	2.94	5.77	5-4	$b^3G-u^5D^\circ$
4418.432	V	(1)	2.98	5.77	4-3	(412)
4433.39	P	⊙	3.00	5.79	3-2	
4423.145	V	(1)	2.98	5.77	4-4	
4461.80	P	⊙	3.00	5.77	3-3	
4326.782	V	(2)	2.94	5.79	5-4	$b^3G-x^3F^\circ$
4351.549	J	3	2.98	5.81	4-3	(413)
*4373.563	J	(2)	3.00	5.83	3-2	
4390.460	V	(1)	2.98	5.79	4-4	
4309.382	V	4	2.94	5.60	5-6	$b^3G-z^3H^\circ$
4367.561	J	5	2.96	5.60	4-5	(414)
4390.954	B	4	3.00	5.62	3-4	
4304.552	J	(1)	2.94	5.80	5-5	
4348.939	J	(1)	2.96	5.62	4-4	
4266.440	V	(1)	2.94	5.82	5-4	
Fe I continued						
4365.902	V	(1)	2.96	5.60	4-3	$b^3G-w^3D^\circ$
4385.260	V	(1)	3.00	5.62	3-2	(415)
4239.735	U	3	2.94	5.65	5-6	$b^3G-w^5G^\circ$
4290.362	J	(2)	2.96	5.65	4-5	(416)
4299.65	W	(1)	3.00	5.67	3-4	
*4229.516	J	(1gn)	2.94	5.65	5-5	
4259.34	P	⊙?	2.96	5.67	4-4	
4260.63	P	⊙	3.00	5.69	3-3	
4199.37	P	⊙	2.94	5.67	5-4	
4255.499	V	(1)	3.00	5.90	3-2	
4223.73	P	⊙	2.94	5.66	5-4	$b^3G-z^1G^\circ$
4264.415	U	(1)	2.98	5.66	4-4	(417)
4196.533	V	(1)	2.94	5.68	5-5	$b^3G-v^5F^\circ$
4203.30	U	(1)	3.00	5.94	3-3	(416)
4140.24	P	⊙?	2.94	5.92	5-4	
4164.60	U	(1)	2.96	5.94	4-3	
4237.67	P	⊙	3.00	5.92	3-4	
4156.670	V	(1)	2.94	5.91	5-5	$b^3G-x^3G^\circ$
4219.41	P	⊙	2.98	5.90	4-4	(419)
*4254.938	V	(1)	3.00	5.91	3-3	
4160.561	V	(1)	2.94	5.90	5-4	
*4215.430	J	2	2.96	5.91	4-5	
4258.956	J	(1)	3.00	5.90	3-4	
4069.325	J	(1)	2.94	5.95	5-5	$b^3G-w^3G^\circ$
*4123.748	J	(1)	2.96	5.97	4-4	(422)
4141.662	V	(1)	3.00	5.98	3-3	
4067.49	P	⊙	2.94	5.97	5-4	
4104.46	P	⊙	2.98	5.96	4-3	
4146.071	V	(2)	2.96	5.95	4-5	
4161.466	V	(1)	3.00	5.97	3-4	
4064.07	P	⊙	2.94	5.97	5-5	$b^3G-z^1H^\circ$
4120.211	J	5	2.98	5.97	4-5	(423)
4011.69	P	⊙	2.94	6.01	5-4	$b^3G-y^1G^\circ$
4066.597	V	(1)	2.96	6.01	4-4	(424)
4045.139	V	(1)	3.00	6.06	3-2	b^3G-2°
						(425)
*3947.533	J	5	2.94	6.06	5-4	$b^3G-w^3F^\circ$
3979.12	P	⊙	2.96	6.06	4-3	(426)
3963.63	P	⊙	3.00	6.10	3-2	
4000.466	J	2	2.96	6.06	4-4	
*4014.26	W	(1)	3.00	6.06	3-3	
4035.96	P	⊙	3.00	6.06	3-4	
3996.28	P	⊙	2.96	6.07	4-3	$b^3G-v^3D^\circ$
*4014.28	W	(1)	3.00	6.08	3-2	(427)
4031.73	P	⊙	3.00	6.07	3-3	
3961.62	P	⊙?	2.96	6.06	4-3	b^3G-3°
4016.81	P		3.00	6.06	3-3	(426)
3897.449	J	(2)	2.94	6.10	5-6	$b^3G-y^3H^\circ$
3922.66	P	⊙	2.96	6.12	4-5	(429)
3671.750	J	4	2.94	6.12	5-5	
3903.902	J	5	2.96	6.14	4-4	
3653.462	V	(1)	2.94	6.14	5-4	
3693.391	I	7	2.94	6.11	5-5	$b^3G-v^3G^\circ$
3919.069	J	3	2.96	6.13	4-4	(430)
3916.644	J	6	3.00	6.15	3-3	
3666.243	V	(1)	2.94	6.13	5-4	
3665.154	V	(1)	2.96	6.15	4-3	
3944.690	J	3	2.96	6.11	4-5	
3953.156	J	4	3.00	6.13	3-4	
*3976.665	J	(1)	3.00	6.11	3-2	$b^3G-z^1D^\circ$
						(431)
3777.061	J	(1)	2.96	6.24	4-3	$b^3G-z^1F^\circ$
						(432)
3726.06	P	⊙	2.94	6.25	5-4	$b^3G-x^1G^\circ$
						(433)
3716.71	P	⊙	2.98	6.30	4-5	$b^3G-u^5F^\circ$
3696.61	P	⊙	3.00	6.34	3-4	(434)
3670.071	J	3	2.94	6.30	5-6	$b^3G-x^3H^\circ$
3709.535	J	(1)	2.96	6.30	4-5	(435)
3663.95	W	(1)	2.94	6.30	5-5	
3662.90	P		2.94	6.31	5-4	$b^3G-t^5D^\circ$
3669.68	P	⊙	2.96	6.34	4-3	(436)
3706.45	P	⊙	2.96	6.31	4-4	
3699.55	P	⊙	3.00	6.34	3-3	
3632.558	J	3	2.94	6.33	5-4	$b^3G-v^3F^\circ$
3669.151	J	3	2.98	6.34	4-3	(437)
3721.606	V	(1)	3.00	6.32	3-2	
*3623.440	G	1	2.94	6.34	5-5	$b^3G-u^3G^\circ$
3626.62	P	⊙	2.96	6.38	4-4	(436)
3637.05	P	⊙	3.00	6.40	3-3	
3565.193	V	(2)	2.94	6.36	5-4	
*3606.148	J	3	2.98	6.40	4-3	
*3667.999	V	1	2.98	6.34	4-5	
3658.02	P	⊙	3.00	6.36	3-4	
3663.25	W	(1)	2.96	6.35	4-4	b^3G-4°
3693.006	J	1	3.00	6.35	3-4	(439)
3590.08	W	(1)	2.94	6.37	5-5	b^3G-6°
3633.637	V	1	2.96	6.37	4-5	(440)
*3845.494	V	1	3.00	6.39	3-2	$b^3G-x^1D^\circ$
						(441)
3469.670	J	4	2.94	6.47	5-6	$b^3G-w^3H^\circ$
3508.494	J	5	2.96	6.50	4-5	(442)
3516.403	G	5	3.00	6.51	3-4	
3449.06	P	⊙	2.94	6.51	5-4	
*3479.683	V	(1)	2.94	6.46	5-6	$b^3G-y^3I^\circ$
						(443)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Fe I continued						
*3383.692	G	5	2.94	6.58	5-4	b^3G-9°
3422.499	J	3	2.98	6.58	4-4	(444)
3448.478	V	(1)	3.00	6.58	3-4	
3409.40	P	⊙	3.00	6.62	3-3	$b^3G-y^1F^\circ$
						(445)
*3339.202	V	2	2.94	6.63	5-5	$b^3G-y^1H^\circ$
						(446)
3372.359	V	(1)	2.98	6.84	4-3	$b^3G-x^1F^\circ$
3397.560	V	(1)	3.00	6.64	3-3	(447)
3357.82	P	⊙	2.98	6.65	4-3	b^3G-10°
						(448)
3310.347	V	4	2.94	6.66	5-5	$b^3G-t^3G^\circ$
3319.258	V	2	2.98	6.70	4-4	(449)
3303.574	V	(2)	3.00	6.74	3-3	
3282.735	V	(1)	2.94	6.70	5-4	
3279.743	V	(2)	2.98	6.74	4-3	
3347.507	V	(1)	2.98	6.66	4-5	
3343.678	V	(1)	3.00	6.70	3-4	
3307.015	V	(1)	2.94	6.67	5-5	b^3G-12°
3344.09	P	⊙	2.98	6.67	4-5	(450)
3275.848	V	(1)	2.94	6.70	5-4	b^3G-13°
3312.232	V	(1)	2.98	6.70	4-4	(450a)
3336.54	P	⊙	3.00	6.70	3-4	
m3222.05	P	Fe	2.94	6.77	5-4	$b^3G-w^1G^\circ$
*3257.244	V	2	2.98	6.77	4-4	(451)
3280.763	V	(1)	3.00	6.77	3-4	
*3153.064	S	(-)	2.94	6.85	5-6	$b^3G-v^3H^\circ$
m3192.84	P	Fe	2.98	6.84	4-5	(452)
3213.771	V	(1)	3.00	6.84	3-4	
3158.99	W	(2)	2.94	6.84	5-5?	
3191.180	S	(-)	2.98	6.84	4-4	
3149.50	P	⊙	2.94	6.85	5-5	$b^3G-x^1H^\circ$
						(453)
3156.464	U	(1)	2.98	6.89	4-3	$b^3G-w^1F^\circ$
3178.545	V	2	3.00	6.89	3-3	(454)
3112.079	V	3	2.94	6.90	5-5	$b^3G-s^3G^\circ$
3145.057	V	(2)	2.98	6.90	4-4	(455)
3147.792	V	(1)	3.00	6.93	3-3	
3166.98	P	⊙?	3.00	6.90	3-4	
3066.69	P	⊙?	2.94	6.96	5-5	$b^3G-u^3H^\circ$
3062.872	S	(1)	2.94	6.97	5-4	(456)
3047.047	V	(1)	2.94	6.99	5-4	$b^3G-u^3F^\circ$
3060.545	V	(1)	2.98	7.01	4-3	(457)
3074.157	V	(2)	3.00	7.02	3-2	
3014.120?	S	(-)	2.94	7.03	5-4	$b^3G-v^1G^\circ$
						(458)
3030.757	S	(-)	2.98	7.05	4-5	$b^3G-x^3I^\circ$
						(459)
*2982.234§	U	(1)	2.98	7.12	4-3	$b^3G-t^3F^\circ$ †
2995.838	U	(1)	3.00	7.12	3-2	(460)
2990.34	P	⊙	2.98	7.10	4-4	
10401.72	P		3.00	4.19	2-2	$c^3P-z^3P^\circ$
10433.65	D	3	3.06	4.24	1-1	(461)
9970.26	P	⊙	3.00	4.24	2-1	
10218.36	F	3	3.06	4.27	1-0	
10896.30	D	3	3.06	4.19	1-2	
10783.09	D	3	3.10	4.24	0-1	
8512.95	P	⊙	3.00	4.45	2-3?	$c^3P-z^3G^\circ$
						(462)
7233.668	I	12	3.00	4.71	2-3	$c^3P-y^3D^\circ$
7189.17	V	3	3.06	4.77	1-2	(463)
7190.12	P	⊙	3.10	4.81	0-1	
6970.48	P	⊙	3.00	4.77	2-2	
7028.58	P	⊙	3.06	4.81	1-1	
6819.42	P	⊙	3.00	4.81	2-1	
*5493.850	T	(0)	3.00	5.25	2-3	$c^3P-x^5P^\circ$
5537.07	P		3.06	5.29	1-2	(464)
5557.90	P	⊙	3.10	5.32	0-1	
5396.90	P	⊙	3.00	5.29	2-2	
5460.909	U	(1)	3.06	5.32	1-1	
5333.77	P	⊙	3.00	5.32	2-1	
5104.038	T	(-)	3.00	5.42	2-3	$c^3P-w^5D^\circ$
*5036.931§	R	2	3.00	5.45	2-2	(465)
4979.84	P	⊙	3.00	5.48	2-1	
4945.29	P	⊙	3.00	5.50	2-3	$c^3P-v^5D^\circ$
5025.73	P		3.06	5.51	1-2	(466)
5082.68	P	⊙	3.10	5.53	0-1	
4786.810	B	5	3.00	5.58	2-3	$c^3P-x^3D^\circ$
4874.35	P	⊙	3.06	5.59	1-2	(467)
4886.17	P	⊙	3.10	5.62	0-1	
*4772.817	B	3	3.00	5.59	2-2	
4811.04	V	(1)	3.06	5.62	1-1	
4712.104	V	(1)	3.00	5.62	2-1	
4585.59	P	⊙	3.00	5.70	2-3	$c^3P-w^5P^\circ$
4620.13	P	⊙	3.06	5.73	1-1	(468)
4528.82	P	⊙	3.00	5.73	2-1	
4490.084	J	(2)	3.00	5.75	2-1	$c^3P-z^3S^\circ$
4579.825	V	(1)	3.06	5.75	1-1	(469)
4461.305	V	(2)	3.00	5.77	2-3	$c^3P-u^5D^\circ$
*4520.24 §	P	(1)	3.06	5.79	1-2	(471)
4526.563	J	(2)	3.10	5.82	0-1	
4432.80	P		3.00	5.79	2-2	
*4461.989	J	(4)	3.06	5.82	1-1	
*4376.782	V	(1)	3.00	5.82	2-1	
4463.14	P	⊙	3.06	5.82	1-0	
Fe I continued						
4464.773	V	(2)	3.00	5.77	2-2	$c^3P-y^3P^\circ$
4517.530	B	(2)	3.06	5.79	1-1	(472)
4430.197	V	(2)	3.00	5.79	2-1	
4564.832	V	(1)	3.06	5.76	1-0	
4553.48	P		3.06	5.77	1-2	
4583.72	P	⊙	3.10	5.79	0-1	
4393.03	P	⊙	3.00	5.81	2-3	$c^3P-x^3F^\circ$
4372.994	V	(1)	3.00	5.83	2-2	(473)
4384.682	V	(1)	3.00	5.82	2-2	$c^3P-w^3D^\circ$
						(474)
4330.81	P	⊙	3.00	5.85	2-2	c^3P-1°
4414.23	P	⊙	3.06	5.85	1-2	(475)
4305.455	B	3	3.00	5.87	2-1	$c^3P-y^3S^\circ$
4387.897	J	3	3.06	5.87	1-1	(476)
4450.320	J	(3)	3.10	5.87	0-1	
*4202.755	V	(1)	3.00	5.94	2-3	$c^3P-v^5F^\circ$
4260.135	V	(1)	3.06	5.96	1-2	(476a)
4298.21	P	⊙	3.10	5.97	0-1	
4123.384	J	4	3.00	5.96	2-2	
4239.95	P	⊙	3.06	5.97	1-1	
4162.93	P	⊙	3.00	5.97	2-1	
*4254.938	V	(1)	3.00	5.90	2-2	$c^3P-w^5G^\circ$
4335.46	P	⊙	3.06	5.90	1-2	(477)
4230.584	U	(1)	3.00	5.92	2-3	$c^3P-v^5P^\circ$
4273.87	W	(1)	3.06	5.95	1-2	(478)
4309.46	P	⊙	3.10	5.96	0-1	
4195.615	J	(3)	3.00	5.95	2-2	
4250.90	P	⊙	3.06	5.96	1-1	
4141.352	U	(1)	3.00	5.98	2-3	$c^3P-w^3G^\circ$
						(480)
4170.906	B	5	3.00	5.96	2-2	$c^3P-x^3P^\circ$
4210.39	P	⊙	3.06	5.99	1-1	(482)
*4134.433	V	(1)	3.00	5.99	2-1	
4220.347	J	4	3.06	5.98	1-0	
4248.228	J	4	3.06	5.96	1-2	
4267.830	B	5	3.10	5.99	0-1	
m4044.64	P	Fe	3.00	6.06	2-2	c^3P-2°
4117.32	U	(1)	3.06	6.06	1-2	(484)
4013.798	V	(1)	3.00	6.08	2-3	$c^3P-w^3F^\circ$
4053.82	W	(1)	3.06	6.10	1-2	(485)
3983.35	U	(1)	3.00	6.10	2-2	
4031.243	V	(2)	3.00	6.07	2-3	$c^3P-v^3D^\circ$
4085.38	P		3.06	6.08	1-2	(486)
*4130.035	U	(1)	3.10	6.09	0-1	
4013.822	J	2	3.00	6.08	2-2	
4076.232	J	(1)	3.06	6.09	1-1	
*4004.976	J	(1)	3.00	6.09	2-1	
3976.392	V	(1)	3.00	6.11	2-2	$c^3P-z^1D^\circ$
4048.629	V	(1)	3.06	6.11	1-2	(487)
3867.219	B	7	3.00	6.20	2-2	$c^3P-w^3P^\circ$
3955.956	J	2	3.06	6.18	1-1	(488)
3888.825	V	3	3.00	6.18	2-1	
3970.391	J	4	3.06	6.17	1-0	
*3933.606	J	(2)	3.06	6.20	1-2	
4006.631	J	2	3.10	6.18	0-1	
3808.286	J	(1)	3.00	6.24	2-3	$c^3P-z^1F^\circ$
						(489)
3699.147	J	1	3.00	6.34	2-3	$c^3P-t^5D^\circ$
3722.23	P	⊙	3.06	6.37	1-2	(490)
3662.73	P	⊙	3.00	6.37	2-2	
3693.79	P	⊙	3.06	6.40	1-1	
3635.19	W	2	3.00	6.40	2-1	
*3679.53	W	(1)	3.06	6.41	1-0	
3698.611	J	2	3.00	6.34	2-3	$c^3P-v^3F^\circ$
3782.608	J	(1)	3.06	6.32	1-2	(491)
3721.189	V	(1)	3.00	6.32	2-2	
3636.650	V	1	3.00	6.40	2-3	$c^3P-u^3G^\circ$
						(493)
3652.26	P	⊙	3.00	6.38	2-2	$c^3P-y^1D^\circ$
3711.411	J	2	3.06	6.38	1-2	(494)
*3645.090	V	2	3.00	6.39	2-2	$c^3P-x^1D^\circ$
3704.010	V	(1)	3.06	6.39	1-2	(495)
3617.788	B	12	3.00	8.42	2-3	$c^3P-u^3D^\circ$
3632.042	J	10	3.06	6.46	1-2	(496)
3645.822	J	6	3.10	6.48	0-1	
3575.374	J	4	3.00	6.46	2-2	
3603.628	J	1	3.06	6.48	1-1	
3548.037	U	(2)	3.00	6.48	2-1	
m3586.10	P	Fe	3.00	6.45	2-3	$c^3P-t^3D^\circ$
3581.916	U	(1)	3.06	6.50	1-2	(497)
*3690.450	V	(1)	3.10	6.44	0-1?	
m3526.69	P	Fe	3.00	6.50	2-2	
m3647.43	P	Fe	3.06	6.44	1-1?	
3590.29	P	⊙?	3.00	6.44	2-1?	
3505.065	V	2	3.00	6.53	2-1	c^3P-8°
3559.506	J	2	3.06	6.53	1-1	(498)
3600.48	P	⊙?	3.10	6.53	0-1	
m3497.89	P	Fe	3.00	6.53	2-2	$c^3P-v^3P^\circ$
*3442.979	V	(1)	3.06	6.64	1-1	(499)
3392.016	V	2	3.00	6.64	2-1	
3552.112	V	1	3.06	6.53	1-2	
*3507.39 §	W	(1)	3.06	6.58	1-2	$c^3P-s^3D^\circ$
						(500)
3459.911	G	4	3.00	6.57	2-1	$c^3P-z^1P^\circ$
3512.95	W	(1)	3.06	6.57	1-1	(501)
Fe I continued						
3426.09	P	⊙	3.10	6.70	0-1	$c^3P-t^5P^\circ$
3388.966	V	(1w)	3.06	6.70	1-1	(502)
3339.588	V	(1w)	3.00	6.70	2-1	
3397.221	V	(1)	3.00	6.64	2-3	$c^3P-x^1F^\circ$
						(503)
*3181.922	U	(2)	3.00	6.88	2-2	$c^3P-w^1D^\circ$
						(505)
3001.66	P	(1)	3.00	7.12	2-3	$c^3P-t^3F^\circ$
3035.25	P	⊙	3.06	7.12	1-2	(506)
8931.78	P	⊙	3.03	4.42	4-4	$a^1G-z^3G^\circ$
8689.71	P	⊙	3.03	4.45	4-3	(507)
8254.34	P	⊙	3.03	4.53	4-4	$a^1G-y^3F^\circ$
7941.84	P	⊙	3.03	4.59	4-3	(508)
7350.55	P	⊙	3.03	4.71	4-3	$a^1G-y^3D^\circ$
						(509)
5038.81	P	⊙?	3.03	5.48	4-4	$a^1G-v^5D^\circ$
						(510)
4842.19	P	⊙?	3.03	5.58	4-3	$a^1G-x^3D^\circ$
						(511)
4793.96	P	(1)	3.03	5.61	4-4	$a^1G-y^3G^\circ$
						(512)
4636.66	P	⊙	3.03	5.70	4-5	$a^1G-z^3I^\circ$
						(513)
4514.189	J	(2)	3.03	5.77	4-4	$a^1G-u^5D^\circ$
*4509.306	U	(1)	3.03	5.77	4-3	(514)
4480.142	J	(3)	3.03	5.79	4-4	$a^1G-x^3F^\circ$
4439.643	V	(1)	3.03	5.81	4-3	(515)
4456.331	J	(1)	3.03	5.80	4-5	$a^1G-z^3H^\circ$
4436.931	V	(2)	3.03	5.82	4-4	(516)
4343.699	J	(2)	3.03	5.87	4-4	$a^1G-w^5G^\circ$
						(517)
4369.774	B	7	3.03	5.86	4-4	$a^1G-z^1G^\circ$
						(518)
4298.040	B	(2)	3.03	5.91	4-5	$a^1G-x^3G^\circ$
4302.191	J	(2)	3.03	5.90	4-4	(520)
4225.956	J	3	3.03	5.95	4-5	$a^1G-w^3G^\circ$
*4202.755	V	(1)	3.03	5.97	4-4	(521)
4199.098	J	20	3.03	5.97	4-5	$a^1G-z^1H^\circ$
						(522)
4143.418	J	15	3.03	6.01	4-4	$a^1G-y^1G^\circ$
						(523)
4074.794	J	5	3.03	6.06	4-4	$a^1G-w^3F^\circ$
4052.664	V	(1)	3.03	6.08	4-3	(524)
4070.45	P	⊙?	3.03	6.07	4-3	$a^1G-v^3D^\circ$
						(525)
3994.117	J	2	3.03	6.12	4-5	$a^1G-y^3H^\circ$
3974.65	P	⊙	3.03	6.14	4-4	(526)
4017.156	J	6	3.03	6.11	4-5	$a^1G-v^3G^\circ$
3990.379	J	2	3.03	6.13	4-4	(527)
3955.22	P	⊙	3.03	6.15	4-3	
3843.359	B	8	3.03	6.24	4-3	$a^1G-z^1F^\circ$
						(528)
3839.259	B	7	3.03	6.25	4-4	$a^1G-x^1G^\circ$
						(529)
3739.34	P	⊙	3.03	6.34	4-4	$a^1G-u^5F^\circ$
						(530)
3773.364	V	(1)	3.03	6.30	4-5	$a^1G-x^3H^\circ$
						(531)
3732.13	P	⊙?	3.03	6.34	4-3	$a^1G-t^5D^\circ$
						(532)
*3740.061	V	(1)	3.03	6.33	4-4	$a^1G-v^3F^\circ$
						(532a)
3730.386	G	3	3.03	6.34	4-5	$a^1G-u^3G^\circ$
3689.897	V	(1w)	3.03	6.38	4-4	(533)
3725.498	J	(1)	3.03	6.35	4-4	a^1G-4°
						(534)
*3895.054	B	8	3.03	6.37	4-5	a^1G-6°
						(534a)
3617.09	W	(1)	3.03	6.45	4-3	$a^1G-t^3D^\circ$
						(535)
3545.832	U	(1)	3.03	6.51	4-4	$a^1G-w^3H^\circ$
						(536)
3529.531	U	(1)	3.03	6.53	4-5	$a^1G-y^3I^\circ$
						(537)
3522.73	P	⊙	3.03	6.54	4-3	$a^1G-s^3D^\circ$
						(538)
3437.046	G	3	3.03	6.62	4-3	$a^1G-y^1F^\circ$
						(539)
3429.82	P	⊙	3.03	6.63	4-5	$a^1G-y^1H^\circ$
						(540)
3425.009	G	4	3.03	6.64	4-3	$a^1G-x^1F^\circ$
						(541)
3410.031	U	(1)	3.03	6.65	4-3	a^1G-10°
						(542)
3329.532	V	(2)	3.03	6.74	4-3	$a^1G-t^3G^\circ$
						(542a)
3395.67	P	⊙	3.03	6.67	4-5	a^1G-12°
						(543)
m3306.35	P	Fe	3.03	6.77	4-4	$a^1G-w^1G^\circ$
						(544)
3240.013	U	(1)	3.03	6.84	4-5	$a^1G-v^3H^\circ$
3238.32	P	⊙	3.03	6.84	4-4	(545)
3229.994	U	(3)	3.03	6.85	4-5	$a^1G-x^1H^\circ$
						(546)
3202.562	V	2	3.03	6.69	4-3	$a^1G-w^1F^\circ$
						(547)
3190.651	U	(2)	3.03	6.90	4-5	$a^1G-s^3G^\circ$
3190.825	V	(2)	3.03	6.90	4-4	(548)
*3171.353	V	5	3.03	6.93	4-3	
3073.244	S	(-)	3.03	7.05	4-5	$a^1G-x^3I^\circ$
						(549)

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
6831.44	P	⊙?	3.20	5.00	4-3	$z^5D^o-a^1F$ (550)
6677.54	P	⊙	3.20	5.05	4-3	z^5D^o-X (551)
6647.90	P	⊙	3.23	5.08	3-2	
6786.41	P	⊙	3.23	5.05	3-3	
6737.29	P	⊙	3.25	5.08	2-2	
6879.59	P	⊙	3.25	5.05	2-3	
6801.31	P	⊙?	3.27	5.08	1-2	
5909.99	W	(3)	3.20	5.29	4-5	$z^5D^o-e^7D$ (552)
5872.73	P		3.23	5.33	3-4	
•5848.09	W	(2n)	3.25	5.36	2-3	
5827.89	P	⊙	3.27	5.39	1-2	
5807.79	P	⊙	3.28	5.40	0-1	
5791.044	V	(2)	3.20	5.33	4-4	
5780.621	V	(2)	3.23	5.36	3-3	
•5780.83	V	(1)	3.25	5.39	2-2	
5714.88	P	⊙	3.23	5.39	3-2	
5324.185	I	30	3.20	5.52	4-4	$z^5D^o-e^5D$ (553)
5283.628	I	18	3.23	5.56	3-3	
5263.314	J	8	3.25	5.60	2-2	
5253.479	V	(2)	3.27	5.62	1-1	
5217.395	J	5	3.20	5.56	4-3	
5208.601	J	7	3.23	5.60	3-2	
5215.185	J	6	3.25	5.62	2-1	
•5229.857	J	5n	3.27	5.63	1-0	
5393.174	I	10	3.23	5.52	3-4	
5339.935	I	12	3.25	5.56	2-3	
5302.307	I	10	3.27	5.60	1-2	
5273.176	K	(5)	3.28	5.62	0-1	
4736.780	I	12	3.20	5.80	4-5	$z^5D^o-e^5F$ (554)
4707.281	B	8	3.23	5.65	3-4	
4668.142	J	6	3.25	5.90	2-3	
4637.512	J	3	3.27	5.93	1-2	
4613.210	J	2n	3.28	5.95	0-1	
•4654.628	J	5	3.20	5.85	4-4	
4625.052	I	3	3.23	5.90	3-3	
•4607.655	J	3n	3.25	5.93	2-2	
4598.122	J	(2n)	3.27	5.95	1-1	
4574.240	V	(1)	3.20	5.90	4-3	
4565.684	V	(2)	3.23	5.93	3-2	
4568.789	V	(1)	3.25	5.95	2-1	
•4531.633	J	(2)	3.20	5.92	4-4	$z^5D^o-e^3F$ (555)
4464.69	P		3.23	5.99	3-3	
4425.75	P	⊙	3.25	6.04	2-2	
4581.517	J	(2)	3.23	5.92	3-4	
4504.838	J	(2)	3.25	5.99	2-3	
4009.54	P	⊙	3.20	6.28	4-5	$z^5D^o-e^7F$ (556)
3990.55	P	⊙	3.23	6.32	3-4	
•4029.640	V	3n	3.25	6.31	2-3	
•4022.744	U	(1)	3.27	6.34	1-2	
3997.49	P	⊙	3.23	6.31	3-3	
4000.266	J	(1)	3.25	6.34	2-2	
4042.75	P	⊙	3.27	6.32	1-1	
3959.46	P	⊙	3.20	6.31	4-3	
4020.05	P	⊙	3.25	6.32	2-1	
4084.17	P	⊙	3.20	6.22	4-5	$z^5D^o-f^7D$ (557)
4052.72	P	⊙	3.23	6.27	3-4	
4076.810	J	(1w)	3.25	6.28	2-3	
4080.888	V	(1w)	3.28	6.30	0-1	
4013.641	J	(2)	3.20	6.27	4-4	
•4043.901	V	5n	3.23	6.26	3-3	
4054.18	W	(1)	3.25	6.30	2-2	
4069.08	U	(1)	3.27	6.30	1-1	
•4004.978	J	(1)	3.20	6.28	4-3	
•4021.622	V	(1)	3.23	6.30	3-2	
4046.07	P	⊙	3.25	6.30	2-1	
4078.636	J	8n	3.20	6.22	4-4	$z^5D^o-f^5D$ (558)
4098.183	J	4n	3.23	6.24	3-3	
•4104.132	K	3	3.25	6.26	2-2	
4097.099	J	(1)	3.27	6.28	1-1	
4058.227	K	4n	3.20	6.24	4-3	
4070.786	J	5n	3.23	6.26	3-2	
4073.760	K	4n	3.25	6.28	2-1	
4080.226	J	2n	3.27	6.29	1-0	
4116.97	U	(1)	3.23	6.22	3-4	
4131.97	P	⊙	3.25	6.24	2-3	
•4127.807	J	3n	3.27	6.26	1-2	
4109.070	J	(1)	3.28	6.28	0-1	
4067.984	J	8n	3.20	6.23	4-4	$z^5D^o-e^7P$ (559)
4085.312	J	4	3.23	6.25	3-3	
4078.89	P	(1)	3.25	6.28	2-2	
4045.59	P	⊙	3.20	6.25	4-3	
4043.98	P	⊙	3.23	6.28	3-2	
4108.13	P	⊙	3.23	6.23	3-4	
4118.904	V	(1)	3.25	6.25	2-3	
4030.499	J	(6)	3.20	6.26	4-5	$z^5D^o-e^5G$ (560)
4024.735	J	6n	3.23	6.29	3-4	
4018.282	J	(4)	3.25	6.32	2-3	
4016.432	V	(2)	3.27	6.34	1-2	
m3988.18	P	Fe	3.20	6.29	4-4	
3986.30	P	⊙	3.23	6.32	3-3	
3994.00	P		3.25	6.34	2-2	
3948.48	P	⊙	3.20	6.32	4-3	
3962.42	P	⊙	3.23	6.34	3-2	
3947.002	J	4n	3.20	6.32	4-5	$z^5D^o-e^7G$ (561)
3967.964	J	4n	3.23	6.34	3-4	
3979.65	W	(1)	3.25	6.35	2-3	
3989.24	P	⊙	3.27	6.36	1-2	
3996.26	P	⊙	3.26	6.37	0-1	
3948.28	P	⊙	3.23	6.35	3-3	
3984.93	P	⊙	3.27	6.37	1-1	
•3966.630	J	10n	3.20	6.31	4-5	$z^5D^o-f^5F$ (562)
3948.105	J	6n	3.23	6.35	3-4	
3957.027	J	4n	3.25	6.37	2-3	
3963.108	J	6n	3.27	6.36	1-2	
•3966.532	V	(1n)	3.28	6.39	0-1	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3911.00	P	(1)	3.20	6.35	4-4	$z^5D^o-f^5F$ (562) cont
3926.001	V	(1)	3.23	6.37	3-3	
3941.283	J	(3)	3.25	6.38	2-2	
3955.352	J	(3)	3.27	6.39	1-1	
3689.33	P		3.20	6.37	4-3	
3910.52	P	⊙	3.23	6.38	3-2	
•3933.606	J	(2)	3.25	6.39	2-1	
3997.48	P	⊙	3.23	6.31	3-2	$z^5D^o-e^5S$ (563)
•4029.640	V	3n	3.25	6.31	2-2	
4052.466	V	(1)	3.27	6.31	1-2	
3936.79	P	⊙	3.20	6.33	4-3	$z^5D^o-e^3D$ (564)
3905.18	P	⊙	3.23	6.39	3-2	
3889.92	P	(1)	3.25	6.42	2-1	
3974.397	J	(1)	3.23	6.33	3-3	
m3935.86	P	Fe	3.25	6.39	2-2	
3911.18	P		3.27	6.42	1-1	
4006.16	P	⊙	3.25	6.33	2-3	
3957.62	W	(1)	3.27	6.39	1-2	
3922.09	P	⊙	3.28	6.42	0-1	
3928.065	J	(1)	3.20	6.34	4-4	$z^5D^o-g^5D$ (565)
3900.519	J	2	3.23	6.39	3-3	
3888.42	P	(1)	3.25	6.43	2-2	
3864.66	W	(1)	3.27	6.45	1-1	
3864.30	P	⊙	3.20	6.39	4-3	
3858.48	P	⊙	3.23	6.43	3-2	
3863.70	P	⊙	3.25	6.45	2-1	
3878.19	P	⊙	3.27	6.45	1-0	
3965.511	J	(1)	3.23	6.34	3-4	
3931.122	J	(3)	3.25	6.39	2-3	
3909.664	J	(1)	3.27	6.43	1-2	
3895.44	P	(1)	3.28	6.45	0-1	
3894.49	U	(1)	3.20	6.37	4-3	$z^5D^o-e^7S$ (566)
3962.353	V	(2)	3.25	6.37	2-3	
3854.375	U	(1)	3.20	6.40	4-3	$z^5D^o-e^5P$ (567)
3855.846	J	(1w)	3.23	6.43	3-2	
3892.98	U	(1)	3.25	6.42	2-1	
3890.39	U	(1)	3.23	6.40	3-3	
3885.76	P	⊙	3.25	6.43	2-2	
3914.273	V	(1)	3.27	6.42	1-1	
3920.839	J	(1)	3.25	6.40	2-3	
3906.97	P	⊙	3.27	6.43	1-2	
3925.201	V	(1)	3.28	6.42	0-1	
3680.675	U	2n	3.20	6.55	4-5	$z^5D^o-g^5F$ (568)
3668.214	U	(1)	3.23	6.59	3-4	
3636.49	P	⊙	3.25	6.65	2-3	
3598.93 ?	W	(1)	3.27	6.70	1-2	
3591.485	U	(1)	3.28	6.71	0-1	
•3636.186	V	2	3.20	6.59	4-4	
3582.34	P	⊙	3.27	6.71	1-1	
•3667.999	V	1	3.20	6.56	4-4	$z^5D^o-h^5D$ (569)
m3647.84	P	Fe	3.23	6.61	3-3	
3618.62	P	⊙	3.25	6.66	2-2	
3615.19	W	(1)	3.27	6.68	1-1	
3616.15	P	(1)	3.20	6.61	4-3	
3592.68	W	(1)	3.23	6.66	3-2	
3597.05	W	3n	3.25	6.68	2-1	
3700.61	P	⊙	3.23	6.56	3-4	
3667.252	G	3n	3.20	6.56	4-3	$z^5D^o-f^5P$ (570)
3644.798	U	(1)	3.23	6.61	3-2	
3624.06	P	⊙	3.25	6.66	2-1	
3671.51	W	(1)	3.25	6.61	2-2	
•3690.450	V	(1)	3.27	6.61	1-2	
3651.03	P	⊙	3.20	6.58	4-5	$z^5D^o-f^5G$ (571)
•3618.392	J	2	3.23	6.64	3-4	
3593.33	W	(1)	3.25	6.69	2-3	
3565.63	P	⊙	3.25	6.71	2-2	
3558.08	P	⊙	3.23	6.70	3-4	$z^5D^o-e^5H$ (572)
3496.60	P	⊙	3.20	6.73	4-3	
3590.99	W	(1)	3.20	6.63	4-5	$z^5D^o-e^3G$ (573)
3579.83	P	⊙	3.23	6.67	3-4	
3621.19	P	⊙	3.23	6.64	3-3	$z^5D^o-f^3D$ (574)
3647.56	P	⊙	3.25	6.64	2-3	
3583.337	J	2	3.28	6.72	0-1?	
3518.23	P	⊙	3.23	6.73	3-4	$z^5D^o-e^3H$ (575)
3473.23	P	⊙	3.20	6.75	4-4	$z^5D^o-f^3F$ (576)
3419.157	V	(1)	3.23	6.84	3-2	
3502.46	P	⊙	3.23	6.75	3-4	
3473.01	P	⊙	3.25	6.81	2-3	
3459.29	P	⊙	3.27	6.84	1-2	
3418.176	U	(2w)	3.27	6.88	1-0	$z^5D^o-e^3P$ (577)
3502.65	P	⊙	3.25	6.77	2-2	
3459.61	P	⊙	3.27	6.84	1-1	
3143.990	C	6	3.20	7.12	4-4	$z^5D^o-i^5D$ (578)
3156.275	G	5n	3.23	7.14	3-3	
3160.200	V	(2n)	3.25	7.16	2-2	
3132.514	V	4n	3.20	7.14	4-3	
3140.385	V	5n	3.23	7.16	3-2	
3167.907	V	(1)	3.23	7.12	3-4	
3174.22	P	⊙	3.27	7.16	1-2	
3150.301	V	(2n)	3.27	7.19	1-2	z^5D^o-4 (578a)
10780.71	P	⊙	3.22	4.37	6-5	$b^3H-z^3G^o$ (579)
10616.75	P	⊙	3.25	4.42	5-4	
10577.14	P	⊙	3.29	4.45	4-3	
9673.16	F	1n	3.25	4.53	5-4	$b^3H-y^3F^o$ (580)
5807.22	P	⊙	3.22	5.35	6-6	$b^3H-z^5H^o$ (581)
6007.75	P	⊙	3.25	5.31	5-5	
6065.61	P	⊙	3.29	5.32	4-4	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5920.520	V	(2)	3.22	5.31	6-5	$b^3H-z^5H^o$ (581) cont
5891.12	U	(1)	3.25	5.35	5-6	
6109.318	V	(1)	3.29	5.31	4-5	
5587.36	P	⊙?	3.25	5.46	5-5	$b^3H-w^5F^o$ (583)
5675.08	P	⊙?	3.29	5.46	4-5	
5209.90	P	⊙	3.22	5.59	6-5	$b^3H-y^3G^o$ (584)
5240.36	P	⊙	3.25	5.61	5-4	
5279.65	P	⊙	3.29	5.62	4-3	
5277.32	P	⊙	3.25	5.59	5-5	
5317.394	V	(1)	3.29	5.61	4-4	
•5030.784§	R	5	3.22	5.66	6-7	$b^3H-z^3I^o$ (585)
5080.95	P	⊙	3.25	5.66	5-6	
5124.60	P	⊙	3.29	5.70	4-5	
m5018.43	P	Fe+	3.22	5.68	6-6	
5052.97	P	⊙	3.25	5.70	5-5	
4975.415	U	(1)	3.29	5.77	4-4	$b^3H-u^5D^o$ (586)
4867.64	P	⊙	3.25	5.79	5-4	$b^3H-x^3F^o$ (587)
4788.757	J	(4)	3.22	5.60	6-6	$b^3H-z^3H^o$ (588)
4839.549	J	(3)	3.25	5.80	5-5	
•4881.726	J	(2)	3.29	5.62	4-4	
4782.79	P	⊙	3.22	5.80	6-5	
4816.67	P	⊙	3.25	5.82	5-4	
•4845.656	V	(2)	3.25	5.60	5-6	
4903.10	P	⊙?	3.29	5.80	4-3	$b^3H-w^3D^o$ (589)
4737.633	J	(1)	3.25	5.86	5-4	$b^3H-z^1G^o$ (590)
4800.55	P	⊙	3.29	5.86	4-4	
4600.937	J	(1)	3.22	5.91	6-5	$b^3H-x^3G^o$ (591)
4658.29	U	(1)	3.25	5.90	5-4	
4714.182	V	(1n)	3.29	5.91	4-3	
4649.828	U	(1)	3.22	5.88	6-5	$b^3H-v^5F^o$ (592)
4518.45	U	(1)	3.22	5.95	6-5	$b^3H-w^3G^o$ (593)
4541.953	U	(1)	3.25	5.97	5-4	
•4575.60	U	(1)	3.29	5.98	4-3	
4569.06	P	⊙	3.25	5.95	5-5	
4487.74	P	⊙	3.22	5.97	6-5	$b^3H-z^1H^o$ (594)
4537.677	J	(1n)	3.25	5.97	5-5	
4595.363	J	(2)	3.29	5.97	4-5	
•4472.721	J	(2)	3.25	6.01	5-4	$b^3H-y^1G^o$ (595)
4528.76	P	⊙	3.29	6.01	4-4	
4446.90	P	⊙	3.29	6.06	4-4	$b^3H-w^3F^o$ (596)
4285.445	B	3	3.22	6.10	6-6	$b^3H-y^3H^o$ (597)
m4299.25	P	Fe	3.25	6.12	5-5	
4327.92	W	(2)	3.29	6.14	4-4	
4330.962	V	(1)	3.25	6.10	5-6	
4280.53	U	(1)	3.22	6.11	6-5	$b^3H-v^3G^o$ (598)
4294.939	V	(1w)	3.25	6.13	5-4?	
4304.87	P	⊙	3.29	6.15	4-3	
4325.95	P	⊙	3.25	6.11	5-5	
4346.558	J	(2)	3.29	6.13	4-4	
4167.862	V	(2)	3.29	6.25	4-4	$b^3H-x^1G^o$ (599)
•4038.622	Q	(-)	3.29	6.34	4-4	$b^3H-u^5F^o$ (600)
•4099.08	U	(1)	3.29	6.30	4-5?	
4012.16	W	(1)	3.22	6.30	6-6	$b^3H-x^3H^o$ (601)
4004.632	J	(1)	3.22	6.30	6-5	
4041.911	S	(-)	3.29	6.34	4-3	$b^3H-t^5D^o$ (602)
4006.314	J	3	3.25	6.33	5-4	$b^3H-v^3F^o$ (603)
•4041.288	V	(1)	3.29	6.34	4-3	
3956.459	J	9	3.22	6.34	6-5	$b^3H-u^3G^o$ (604)
3948.779	B	10	3.25	6.38	5-4	
3967.423	B	8	3.29	6.40	4-3	
3995.199	J	(1w)	3.25	6.34	5-5	
3992.395	U	(1)	3.29	8.38	4-4	
3989.60	P	⊙	3.25	6.35	5-4	b^3H-4° (605)
3916.733	I	6	3.22	6.37	6-5	b^3H-6° (606)
3954.715	U	(1)	3.25	6.37	5-5	
3998.46	P	⊙	3.29	6.37	4-5	
3797.517	B	12	3.22	6.47	6-6	$b^3H-w^3H^o$ (607)
3606.697	G	10	3.25	6.50	5-5	
3624.306	V	2	3.29	6.51	4-4	
3771.50	P	⊙	3.22	6.50	6-5	
3764.27	P	⊙	3.25	6.51	5-4	
3765.542	B	20	3.22	6.50	6-7	$b^3H-y^3I^o$ (608)
3621.161	I	10	3.25	6.48	5-6	
3605.345	B	12	3.29	6.53	4-5	
3765.706	J	(1)	3.22	6.46	6-6	
3765.70	W	(1)	3.25	6.53	5-5	
3704.336	V	(1)	3.22	6.55	6-6	$b^3H-z^1I^o$ (609)
3736.306	B	10	3.25	6.55	5-6	
3705.70	P	⊙	3.25	6.58	5-4	b^3H-9° (610)
3566.114	B	10	3.22	6.66	6-5	$b^3H-t^3G^o$ (611)
•3564.960	J	4	3.25	6.70	5-4	
3573.896	G	4	3.29	6.74	4-3	
3620.67	P	⊙	3.29	6.70	4-4	
3582.201	J	5	3.22	6.67	6-5	b^3H-12° (612)
3613.95	P	⊙	3.25	6.67	5-5	
3576.760	B	2	3.25	6.70	5-4	b^3H-13° (613a)
3612.51	P	⊙	3.29	6.70	4-4	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Fe I continued						
3512.74	P	⊙	3.25	8.77	5-4	$b^3H-w^1G^\circ$
*3547.203	J	(2)	3.29	6.77	4-4	(613)
3402.256	G	5	3.22	8.85	6-8	$b^3H-v^3H^\circ$
3437.958	V	(2)	3.25	8.84	5-5	(614)
3469.012	V	(2)	3.29	6.84	4-4	
3409.20	W	(2)	3.22	6.84	6-5	
3436.045	V	(1)	3.25	6.84	5-4	
3430.88	P	⊙	3.25	6.85	5-8	
3398.12	P	⊙	3.22	6.85	6-5	$b^3H-x^1H^\circ$
3426.67	P	⊙	3.25	6.85	5-5	(815)
3428.01	P	⊙	3.29	6.89	4-3	$b^3H-w^1F^\circ$ (818)
3307.234	G	5	3.22	8.95	6-8	$b^3H-u^3H^\circ$
3328.867	C	5	3.25	6.96	5-5	(817)
3355.228	C	6	3.29	6.97	4-4	
3301.927	V	(1)	3.22	8.96	6-5	
3324.372	V	(2)	3.25	6.97	5-4	
3334.278	V	(1)	3.25	6.95	5-6	
3359.814	V	(2)	3.29	6.98	4-5	
3305.75	P	⊙	3.25	6.99	5-4	$b^3H-u^3F^\circ$
3315.17	P	⊙	3.29	7.01	4-3	(618)
3336.262	V	(3)	3.29	6.99	4-4	
*3296.806§	V	(1)	3.29	7.03	4-4	$b^3H-v^1G^\circ$ (819)
3233.053	G	8	3.22	7.04	6-7	$b^3H-x^3I^\circ$
3254.363	C	10	3.25	7.05	5-6	(620)
3280.261	C	8	3.29	7.05	4-5	
10145.00	P	⊙?	3.24	4.45	3-3	$a^3D-z^3G^\circ$ (821)
9556.56	F	1	3.24	4.53	3-4	$a^3D-y^3F^\circ$
9485.93	P		3.29	4.59	2-3	(622)
8994.62	P	⊙	3.26	4.63	1-2	
9140.15	P	⊙	3.24	4.59	3-3	
9173.83	U	(1)	3.29	4.63	2-2	
8365.642	E	25	3.24	4.71	3-3	$a^3D-y^3D^\circ$
8293.537	E	20	3.29	4.77	2-2	(623)
7941.09	O	10	3.26	4.81	1-1	
8027.96	P	⊙	3.24	4.77	3-2	
8080.668	E	10nd?	3.29	4.81	2-1	
8654.40	P	⊙	3.29	4.71	2-3	
8146.87	P	⊙	3.26	4.77	1-2	
6130.37	P	(1)	3.24	5.25	3-3	$a^3D-x^5P^\circ$
8157.41	P	⊙	3.29	5.29	2-2	(624)
5996.22	P	⊙	3.28	5.32	1-1	
8009.83	P	⊙	3.24	5.29	3-2	
6284.00	P	⊙	3.29	5.25	2-3	
5787.27	P	⊙	3.24	5.37	3-4	$a^3D-w^5D^\circ$
5623.64	P	⊙	3.26	5.45	1-2	(625)
5648.90	P	⊙	3.24	5.42	3-3	
5588.82	P	⊙	3.24	5.45	3-2	
5817.22	W	(1)	3.24	5.43	3-4	$a^3D-w^5F^\circ$
*5562.712	V	(2)	3.28	5.48	1-1	(628)
*5535.419	J	(2)	3.24	5.47	3-2	
5455.09	P	⊙	3.24	5.50	3-3	$a^3D-v^5D^\circ$
5541.58	P	⊙	3.29	5.51	2-2	(627)
5282.89	P	⊙	3.24	5.58	3-3	$a^3D-x^3D^\circ$
5358.10	P	⊙	3.29	5.59	2-2	(628)
5221.75	P	(1)	3.26	5.62	1-1	
5246.00	P	⊙	3.24	5.59	3-2	
5020.87	P	⊙	3.24	5.70	3-3	$a^3D-w^5P^\circ$
5021.894	V	(1)	3.26	5.72	1-2	(629)
4871.94	P	⊙	3.24	5.77	3-3	$a^3D-u^5D^\circ$
4813.11	V	(1)	3.26	5.82	1-1	(630)
4838.09	P	⊙	3.24	5.79	3-2	
4878.19	P	⊙	3.24	5.77	3-2	$a^3D-y^3P^\circ$
4930.04	P	⊙	3.29	5.79	2-1	(631)
4972.90	P	⊙	3.29	5.77	2-2	
4919.73	P	⊙	3.26	5.77	1-2	
4790.75	P	⊙	3.24	5.81	3-3	$a^3D-x^3F^\circ$
4859.31	P	⊙	3.29	5.83	2-2	(632)
4808.155	V	(1)	3.24	5.80	3-3	$a^3D-w^3D^\circ$
4873.74	P	⊙	3.29	5.82	2-2	(633)
4791.250	V	(1)	3.26	5.84	1-1	
4780.81	P	⊙	3.24	5.82	3-2	
4841.65	P	⊙	3.29	5.84	2-1	
4822.66	P	⊙	3.28	5.82	1-2	
4718.85	P	⊙	3.24	5.85	3-2	a^3D-1°
*4807.243	S	(-)	3.29	5.85	2-2	(634)
*4757.582	J	(2)	3.28	5.85	1-2	
4778.075	V	(1)	3.29	5.87	2-1	$a^3D-y^3S^\circ$
4727.01	P	⊙	3.28	5.87	1-1	(835)
4828.38	P	⊙	3.24	5.91	3-3	$a^3D-x^3G^\circ$ (838)
4627.02	P	⊙	3.24	5.90	3-2	$a^3D-w^5G^\circ$ (837)
4558.939	J	(1)	3.24	5.95	3-2	$a^3D-v^5P^\circ$
4814.216	J	(1)	3.29	5.96	2-1	(838)
4594.959	V	(2,g?)	3.28	5.95	1-2	
4518.08	P	⊙	3.24	5.97	3-4	$a^3D-w^3G^\circ$
4492.98	P	⊙	3.24	5.98	3-3	(839)
4579.07	P	⊙	3.28	5.98	1-2	$a^3D-v^5F^\circ$
4555.75	P	⊙	3.28	5.97	1-1	(840)
4527.796	V	(1)	3.24	5.98	3-2	$a^3D-x^3P^\circ$
4568.520	J	(2)	3.29	5.99	2-1	(841)
4533.143	V	(1n,g?)	3.28	5.98	1-0	
Fe I continued						
4811.05	P	⊙	3.29	5.98	2-2	$a^3D-x^3P^\circ$
4521.85	P	⊙	3.28	5.99	1-1	(841)
4565.324	V	(2n)	3.28	5.98	1-2	cont
4414.47	P	(1)	3.28	6.08	1-2	a^3D-2° (843)
4368.66	P	⊙	3.24	8.08	3-4	$a^3D-w^3F^\circ$
4419.78	P	⊙	3.29	6.08	2-3	(644)
4341.57	P	⊙	3.26	6.10	1-2	
4343.22	P	⊙	3.24	8.08	3-3	
4343.257	J	(2)	3.24	6.08	3-2	$a^3D-v^3D^\circ$
4409.123	J	(21)	3.29	6.09	2-1	(645)
4440.972	V	(2)	3.29	8.07	2-3	
4377.798	V	(1)	3.26	8.08	1-2	
4422.882	V	(1n)	3.29	8.08	2-3	a^3D-3° (646)
4304.15	P	⊙	3.29	8.15	2-3	$a^3D-v^3G^\circ$
4231.525	V	(1gn)	3.24	6.15	3-3	(647)
4299.49	P	⊙	3.24	6.11	3-2	$a^3D-z^1D^\circ$
4374.495	V	(1)	3.29	6.11	2-2	(848)
4172.126	J	5	3.24	6.20	3-2	$a^3D-w^3P^\circ$
4268.744	J	2	3.29	6.18	2-1	(649)
4246.02	P	⊙	3.26	6.17	1-0	
4242.730	J	(2)	3.29	6.20	2-2	
*4229.516	J	(1gn)	3.26	6.18	1-1	
4103.62	P	⊙	3.24	8.24	3-3	$a^3D-z^1F^\circ$
4171.904	V	(2)	3.29	6.24	2-3	(650)
*4099.08	U	(1)	3.24	6.25	3-4	$a^3D-x^1G^\circ$ (651)
*3932.629	J	4	3.28	8.40	1-2	$a^3D-u^5F^\circ$
*3966.532	V	(1n)	3.29	6.40	2-2	(652)
3914.42	P	⊙	3.28	8.41	1-1	
3948.00	P	⊙	3.29	8.41	2-1	
*4022.744	U	(1)	3.24	6.31	3-4	$a^3D-t^5D^\circ$
*4041.288	V	(1)	3.29	6.34	2-3	(654)
3963.43	P	⊙	3.26	6.37	1-2	
3986.176	J	5	3.24	6.33	3-4	$a^3D-v^3F^\circ$
4040.650	J	4	3.29	6.34	2-3	(655)
4031.968	V	4	3.26	8.32	1-2	
3976.564	V	(1)	3.24	6.34	3-3	
4067.60	P	⊙	3.29	6.32	2-2	
*4002.665	V	(1)	3.24	8.32	3-2	
3969.628	J	(1)	3.24	6.35	3-4	a^3D-4° (657)
3965.446	V	(1)	3.24	6.35	3-	a^3D-5° (658)
3929.208	J	(1)	3.24	8.38	3-4	$a^3D-u^3G^\circ$
3966.824	J	(1)	3.29	8.40	2-3	(859)
3925.55	P	⊙	3.24	6.38	3-3	$a^3D-u^5P^\circ$
3889.38	P	⊙	3.28	6.43	1-1	(880)
3914.50	P	⊙	3.26	8.41	1-2	
3923.03	P	⊙	3.24	8.38	3-2	$a^3D-y^1D^\circ$
3985.393	J	3	3.29	8.38	2-2	(881)
3951.184	I	9	3.26	6.38	1-2	
3914.73	W	(1)	3.24	8.39	3-2	$a^3D-x^1D^\circ$
*3978.885	J	(1)	3.29	8.39	2-2	(682)
3883.282	J	(4)	3.24	6.42	3-3	$a^3D-u^3D^\circ$
3894.005	J	(2)	3.29	8.48	2-2	(683)
*3829.458	V	1	3.26	6.48	1-1	
3834.46	P	⊙	3.24	6.46	3-2	
3881.60	U	(1)	3.29	6.48	2-1	
*3861.341	J	2	3.28	8.46	1-2	
3846.803	B	8	3.24	6.45	3-3	$a^3D-t^3D^\circ$
3836.332	I	4	3.29	8.50	2-2	(864)
3878.726	V	(2)	3.26	6.44	1-1?	
3778.509	J	4	3.24	6.50	3-2	
3911.899	U	(1)	3.29	6.44	2-1?	
3906.748	J	2	3.29	6.45	2-3	
3810.759	J	2	3.29	8.53	2-1	a^3D-8°
3779.444	V	3*	3.28	8.53	1-1	(665)
3802.283	J	(1)	3.29	6.53	2-2	$a^3D-v^3P^\circ$ (868)
3740.247	J	3	3.24	8.54	3-3	$a^3D-s^3D^\circ$
3751.059	J	(1)	3.29	8.58	2-2	(887)
3796.90	U	(1)	3.29	6.54	2-3	
3757.459	J	1	3.29	8.57	2-1	$a^3D-z^1P^\circ$
3727.03	P	⊙	3.26	8.57	1-1	(888)
3688.478	V	(1w)	3.24	6.58	3-4	a^3D-9° (889)
3643.80	P	(1)	3.24	8.62	3-3	$a^3D-y^1F^\circ$
3897.510	V	(1w)	3.29	8.62	2-3	(870)
*3883.618	V	(1)	3.29	8.64	2-3	$a^3D-x^1F^\circ$ (871)
3613.45	P	⊙	3.24	8.85	3-3	a^3D-10°
3888.29	P	⊙	3.29	8.85	2-3	(872)
3568.828	V	(2)	3.24	8.70	3-4	$a^3D-t^3G^\circ$
3573.403	V	2	3.29	8.74	2-3	(873)
3523.18	P	⊙	3.24	8.74	3-3	
3598.71	W	1	3.24	8.87	3-3	a^3D-11°
*3851.10	W	(1)	3.29	8.87	2-3	(874)
3560.705	V	5	3.24	8.70	3-4	a^3D-13° (875)
*3431.815	J	3	3.29	8.88	2-2	$a^3D-w^1D^\circ$
3406.442	J	3	3.28	8.88	1-2	(878)
*3381.340	V	(2)	3.24	6.89	3-3	$a^3D-w^1F^\circ$ (677)
Fe I continued						
3388.25	P	⊙	3.24	8.90	3-4	$a^3D-s^3G^\circ$
3391.84	P	⊙	3.29	6.93	2-3	(878)
3310.498	V	(3)	3.24	8.97	3-4	$a^3D-u^3H^\circ$ (879)
3292.022	G	8	3.24	6.99	3-4	$a^3D-u^3F^\circ$
3314.742	C	7	3.29	7.01	2-3	(880)
3282.891	G	(2)	3.26	7.02	1-2	
3271.498	V	(2)	3.24	7.01	3-3	
3308.495	V	(1)	3.29	7.02	2-2	
3283.45	P	⊙	3.24	7.02	3-2	
3253.610	V	4	3.24	7.03	3-4	$a^3D-v^1G^\circ$ (881)
3191.41	P	⊙	3.24	7.10	3-4	$a^3D-t^3F^\circ$
3223.08	P	⊙	3.29	7.12	2-3	(882)
3193.74	P	⊙	3.26	7.12	1-2	
3216.08	P	⊙	3.29	7.12	2-2	
7478.87	P	⊙	3.35	5.00	4-3	$z^5F^\circ-a^1F$ (683)
7340.78	P	⊙	3.40	5.08	2-2	$z^5F^\circ-X$
7398.78	P	⊙	3.42	5.08	1-2	(684)
6271.289	U	(1)	3.32	5.29	5-5	$z^5F^\circ-e^7D$
6249.65	P	⊙	3.35	5.33	4-4	(685)
6232.735	Q	(-)	3.38	5.36	3-3	
6219.54	P	⊙	3.40	5.39	2-2	
6137.51	P	⊙	3.32	5.33	5-4	
6145.42	P	⊙	3.35	5.36	4-3	
6388.41	P	⊙	3.35	5.29	4-5	
8339.98	P	⊙	3.38	5.33	3-4	
5615.652	B	50	3.32	5.52	5-4	$z^5F^\circ-e^5D$
5588.763	B	40	3.35	5.56	4-3	(686)
5572.849	B	30	3.38	5.60	3-2	
5589.625	B	20	3.40	5.82	2-1	
5576.097	J	10	3.42	5.63	1-0	
5709.378	K	10	3.35	5.52	4-4	
5658.826	B	10	3.38	5.56	3-3	
5624.549	B	10	3.40	5.60	2-2	
5602.955	J	10	3.42	5.62	1-1	
5784.69	V	(1)	3.38	5.52	3-4	
5712.150	V	(2)	3.40	5.56	2-3	
5658.542	V	(1)	3.42	5.60	1-2	
4966.096	B	8	3.32	5.80	5-5	$z^5F^\circ-e^5F$
4946.394	J	4	3.35	5.85	4-4	(687)
4910.027	J	(2)	3.38	5.90	3-3	
4882.151	J	(2)	3.40	5.93	2-2	
4883.653	J	(2)	3.42	5.95	1-1	
4875.89	W	(1)	3.32	5.85	5-4	
4855.883	J	(3)	3.35	5.90	4-3	
4843.155	J	(3)	3.38	5.93	3-2	
4838.519	J	(2n)	3.40	5.95	2-1	
5039.266	V	(2)	3.35	5.80	4-5	
5002.800	J	(6)	3.38	5.85	3-4	
4950.112	J	(2)	3.40	5.90	2-3	
4907.743	K	(1)	3.42	5.93	1-2	
4741.081	J	(1)	3.32	5.92	5-4	$z^5F^\circ-e^3F$
4879.229	V	(1)	3.35	5.99	4-3	(688)
4642.58	P	⊙	3.38	6.04	3-2	
4807.725	K	(2)	3.35	5.92	4-4	
4729.899	V	(1)	3.38	5.99	3-3	
4678.41	P	⊙	3.40	6.04	2-2	
4860.98	P	(1)	3.38	5.92	3-4	
4788.87	P	⊙	3.40	5.99	2-3	
4701.90	P	⊙	3.42	6.04	1-2	
4259.988	V	(2)	3.32	6.21	5-6	$z^5F^\circ-e^7F$
4224.176	J	6n	3.35	6.28	4-5	(689)
4200.930	J	3n	3.38	6.32	3-4	
*4238.027	J	4	3.40	6.31	2-3	
4224.509	V	3n	3.42	6.34	1-2	
4172.641	V	(1)	3.32	6.28	5-5	
4161.080	V	(1)	3.35	6.32	4-4	
*4208.610	J	3n	3.38	6.31	3-3	
4205.548	J	(2)	3.40	6.34	2-2	
4246.59	P	(1)	3.42	6.32	1-1	
4111.06	P	(1)	3.32	6.32	5-4	
4168.625	V	(1w)	3.35	6.31	4-3	
m4176.57	P	Fe	3.38	6.34	3-2	
m4227.42	P	Fe	3.40	6.32	2-1	
4253.52	P	⊙	3.32	6.22	5-5	$z^5F^\circ-f^7D$
4228.71	P	⊙	3.35	6.27	4-4	(690)
4177.07	P	(1)	3.32	6.27	5-4	
4256.212	V	(3)	3.40	6.30	2-1	
4307.08	P	⊙	3.35	6.22	4-5	
4289.87	P	⊙	3.38	6.27	3-4	
4245.358	M	tr?	3.32	6.22	5-4	$z^5F^\circ-f^5D$
4278.234	J	(1)	3.35	6.24	4-3	(691)
4320.38	P	(1)	3.38	6.24	3-3	
4320.52	U	(1)	3.40	6.26	2-2	
4306.58	P	(1)	3.42	6.28	1-1	
4341.23	P	⊙	3.38	6.22	3-4	
4351.37	P	⊙	3.40	6.24	2-3	
*4340.51	P	(1)	3.42	6.26	1-2	
m4235.96	P	Fe	3.32	6.23	5-4	$z^5F^\circ-e^7P$
4264.209	J	(2)	3.35	6.25	4-3	(692)
4336.86	P	⊙	3.40	6.25	2-3	
4227.434	J	30	3.32	6.24	5-6	$z^5F^\circ-e^5G$
4247.432	I	12	3.35	8.26	4-5	(693)
4238.816	I	10n	3.38	6.29	3-4	
4225.460	J	6n	3.40	6.32	2-3	
4217.551	J	7n	3.42	6.34	1-2	
4195.337	J	5	3.32	6.26	5-5	
4198.268	V	(1)	3.35	8.29	4-4	
4198.218	J	4	3.38	6.32	3-3	
4198.645	J	4n	3.40	8.34	2-2	
4147.34	P	⊙	3.32	8.29	5-4	
4158.460	V	(1)	3.35	6.32	4-3	
4189.777	V	(1)	3.38	8.34	3-2	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4149.372	J	5n	3.32	6.29	5-6	$z^5F^o-e^7G$
4154.812	J	9n	3.35	6.32	4-5	(894)
4175.89	P	⊙	3.38	6.34	3-4	
4182.790	V	(2b,gn)	3.40	8.35	2-3	
4187.59	W	(1)	3.42	6.36	1-2	
4104.97	U	(1)	3.32	6.32	5-5	
4136.512	J	(1)	3.35	6.34	4-4	
4154.109	J	(1)	3.38	6.35	3-3	
4168.942	V	(1w)	3.40	6.36	2-2	
4087.099	J	(1)	3.32	6.34	5-4	
•4140.441	V	(1)	3.38	6.36	3-2	
4164.24	P	⊙	3.40	6.37	2-1	
4126.192	J	3n	3.32	6.31	5-5	$z^5F^o-f^5F$
4114.957	J	(1w)	3.35	8.35	4-4	(695)
4129.46	P	⊙	3.36	6.37	3-3	
•4140.441	V	(1)	3.40	6.38	2-2	
4150.258	J	(4)	3.42	6.39	1-1	
4066.02	P	⊙	3.32	8.35	5-4	
4090.984	V	(1w)	3.35	6.37	4-3	
4112.35	V	(1)	3.38	6.38	3-2	
4131.94	P	⊙	3.40	6.39	2-1	
4176.571	J	7n	3.35	6.31	4-5	
4153.906	J	10n	3.38	6.35	3-4	
4157.788	J	8n	3.40	6.37	2-3	
4158.798	J	5n	3.42	6.38	1-2	
•4208.610	J	3n	3.38	6.31	3-2	$z^5F^o-e^5S$
•4238.057	J	4	3.40	8.31	2-2	(696)
4143.50	P	⊙	3.35	8.33	4-3	$z^5F^o-e^3D$
4106.437	V	(1)	3.38	8.39	3-2	(697)
4083.780	J	(1)	3.40	6.42	2-1	
4183.025	V	(1)	3.38	6.33	3-3	
•4134.433	V	(1)	3.40	6.39	2-2	
4212.06	P	⊙	3.40	6.33	2-3	
4084.498	J	6	3.32	6.22	5-4	$z^5F^o-g^5D$
4063.286	J	(3)	3.35	6.24	4-3	(698)
4054.833	V	(1)	3.38	6.26	3-2	
4054.883	V	3	3.40	8.28	2-1	
4065.402	V	(2)	3.42	6.29	1-0	
4133.869	J	(2)	3.35	6.22	4-4	
4101.272	J	(1)	3.38	8.24	3-3	
4082.125	J	(1)	3.40	6.28	2-2	
4072.518	V	(2)	3.42	6.28	1-1	
4173.18	P	⊙	3.38	6.22	3-4	
4129.22	U	(1)	3.40	6.24	2-3	
4099.99	P	⊙	3.42	6.26	1-2	
•4163.678	V	(1)	3.40	6.37	2-3	$z^5F^o-e^7S$
•4052.312	J	(1)	3.35	8.40	4-3	(899) $z^5F^o-e^5P$
4051.923	J	(2)	3.38	6.43	3-2	(700)
4090.085	V	(1)	3.38	8.40	3-3	
4079.18	P	⊙	3.40	6.43	2-2	
4105.08	P	⊙	3.42	8.42	1-1	
•4117.872	V	(1)	3.40	6.40	2-3	
4097.02	P	⊙	3.42	8.43	1-2	
3817.84	W	3n	3.32	8.55	5-5	$z^5F^o-g^5F$
3811.80	P	⊙	3.35	8.59	4-4	(701)
3860.74	P	⊙	3.35	8.55	4-5	
3845.21	P	⊙	3.38	8.59	3-4	
3804.013	J	(2)	3.32	6.58	5-4	$z^5F^o-h^5D$
3789.82	P	⊙	3.35	6.61	4-3	(702)
3846.001	V	(1w)	3.35	6.56	4-3	$z^5F^o-f^5P$
3819.50	P	⊙	3.38	6.61	3-2	(703)
3791.73	U	(1)	3.40	6.86	2-1	
3843.72	P	⊙	3.40	6.81	2-2	
3905.01	P	⊙	3.40	8.56	2-3	
3801.975	J	(2w)	3.32	6.56	5-8	$z^5F^o-f^5G$
3758.11	P	⊙	3.40	6.89	2-3	(704)
3742.937	V	(0)	3.42	6.71	1-2	
3785.78	P	⊙	3.32	6.58	5-5	
3717.19	P	⊙	3.32	8.64	5-4	
3703.43	P	⊙	3.35	6.69	4-3	
3705.28	P	⊙	3.38	8.71	3-2	
•3721.276	V	2	3.32	6.83	5-5	$z^5F^o-e^3G$
•3716.442	G	12	3.35	6.87	4-4	(705)
3762.205	V	(1)	3.35	6.83	4-5	
3727.53	P	⊙	3.40	6.71	2-3	
3761.06	P	⊙	3.35	6.84	4-3	$z^5F^o-f^3D$
3717.84	P	⊙	3.40	8.72	2-1	(706)
•3895.507	V	(1)	3.40	6.74	2-2	$z^5F^o-g^7D$
3891.53	P	⊙	3.42	8.76	1-1	(707)
•3740.061	V	(1)	3.38	6.88	3-4	
3722.77	P	⊙	3.40	6.72	2-3	
3416.52	P	⊙	3.35	6.97	4-5	z^5F^o-1
3380.004	V	(1)	3.32	6.97	5-	(708) z^5F^o-2
•3243.406	V	3	3.32	7.12	5-4	(709) $z^5F^o-1^5D$
3262.009	V	(2)	3.35	7.14	4-3	(710)
3269.240	V	(1w)	3.38	7.16	3-2	
3274.452	V	(2w)	3.35	7.12	4-4	
3286.463	V	(2w)	3.38	7.14	3-3	
3299.079	V	(1w)	3.38	7.12	3-4	
3304.36	P	⊙	3.40	7.14	2-3	
3211.693	V	6	3.32	7.16	5-6	$z^5F^o-g^5G$
•3214.044	V	20	3.35	7.19	4-5	(711)
•3211.872	V	4	3.38	7.22	3-4	
•3209.297	G	6	3.40	7.25	2-3	
3208.470	G	4	3.42	7.26	1-2	
•3192.417	U	(1)	3.38	7.25	3-3	
3197.53	W	(1)	3.40	7.26	2-2	
3261.332	V	(2)	3.40	7.19	2-2	z^5F^o-4
3272.71	U	(1)	3.42	7.19	1-2	(712)

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
8978.17	P	⊙	3.40	4.77	1-2	$a^1P-y^3D^o$
8729.12	P	2	3.40	4.61	1-1	(713)
5551.29	P	⊙	3.40	5.82	1-1	$a^1P-x^3D^o$
5245.72	P	⊙	3.40	5.75	1-1	(714) $a^1P-z^3S^o$
5228.08	P	(1)	3.40	5.78	1-0	(715) $a^1P-y^3P^o$
5167.70	P	⊙	3.40	5.79	1-2	(716) $a^1P-u^5D^o$
5091.73	P	⊙	3.40	5.82	1-1	(717)
5029.823	V	(1)	3.40	5.85	1-2	a^1P-1°
4818.88	P	⊙	3.40	5.98	1-1	(718) $a^1P-v^5P^o$
4815.22	P	⊙	3.40	5.96	1-2	(719) $a^1P-x^3P^o$
4779.444	J	(1)	3.40	5.98	1-0	(720)
4804.59	P	(1)	3.40	5.97	1-1	$a^1P-v^5F^o$
4647.72	P	⊙	3.40	6.08	1-2	(721) a^1P-2°
4566.990	V	(1)	3.40	6.10	1-2	(722) $a^1P-w^3F^o$
4607.08	P	⊙	3.40	6.08	1-2	(723) $a^1P-v^3D^o$
4461.37	W	(1)	3.40	6.17	1-0	(724) $a^1P-w^3P^o$
4137.002	J	7	3.40	8.38	1-2	(725) $a^1P-y^1D^o$
•4127.807	J	3n	3.40	8.39	1-2	(726) $a^1P-x^1D^o$
•4038.622	Q	(-)	3.40	6.46	1-2	(727) $a^1P-u^3D^o$
4003.764	J	2	3.40	6.48	1-1	(728)
3978.615	J	4	3.40	8.50	1-2	$a^1P-t^3D^o$
4057.66	P	⊙	3.40	6.44	1-1?	(729)
3949.14	W	(1)	3.40	6.53	1-1	a^1P-8°
3940.044	V	(1)	3.40	6.53	1-2	(730) $a^1P-v^3P^o$
3806.203	J	2	3.40	6.64	1-1	(731)
3885.07	P	⊙?	3.40	6.58	1-2	$a^1P-s^3D^o$
3891.928	J	3	3.40	6.57	1-1	(732) $a^1P-z^1P^o$
3543.869	J	(4)	3.40	6.88	1-2	(733) $a^1P-w^1D^o$
3410.171	G	3	3.40	7.02	1-2	(734) $a^1P-u^3F^o$
•3314.070§	V	(1)	3.40	7.12	1-2	(735) $a^1P-t^3F^o$
						(738)
9924.35	P	⊙	3.53	4.77	2-2	$a^1D-y^3D^o$
9820.93	P	⊙	3.53	4.81	2-1	(737)
6018.66	W	(2)	3.53	5.58	2-3	$a^1D-x^3D^o$
5814.58	P	⊙?	3.53	5.73	2-1	(738) $a^1D-w^3P^o$
5555.17	P	⊙	3.53	5.75	2-1	(739) $a^1D-z^3S^o$
5487.78	P	⊙	3.53	5.79	2-2	(740) $a^1D-u^5D^o$
5382.750	T	(-)	3.53	5.82	2-1	(741)
5275.30	P	⊙	3.53	5.87	2-1	$a^1D-y^3S^o$
5198.843	V	(1)	3.53	5.91	2-3	(742) $a^1D-x^3G^o$
5078.53	P	⊙?	3.53	5.96	2-1	(743) $a^1D-v^5P^o$
5121.96	P	⊙?	3.53	5.94	2-3	(744) $a^1D-v^5F^o$
5091.72	P	⊙	3.53	5.96	2-2	(745)
•5031.030	R	2	3.53	5.98	2-3	$a^1D-w^3G^o$
5020.819	U	(1)	3.53	5.99	2-1	(746) $a^1D-x^3P^o$
•4889.009	U	(1)	3.53	6.08	2-2	(748) a^1D-2°
4844.018	V	(2)	3.53	6.08	2-3	(749) $a^1D-w^3F^o$
4869.45	P	⊙	3.53	8.07	2-3	(750) $a^1D-v^3D^o$
4705.464	J	(1)	3.53	6.15	2-3	(751) $a^1D-v^3G^o$
4789.654	B	7	3.53	6.11	2-2	(752) $a^1D-z^1D^o$
4632.14	P	⊙	3.53	6.20	2-2	(753) $a^1D-w^3P^o$
4683.183	J	(1)	3.53	6.16	2-1	(754)
4547.651	B	4	3.53	6.24	2-3	$a^1D-z^1F^o$
4343.68	P	⊙	3.53	8.37	2-3	(755) $a^1D-u^5F^o$
4304.87	P	⊙	3.53	6.40	2-2	(758)
4392.31	P	⊙	3.53	8.34	2-3	$a^1D-v^3F^o$
4424.194	V	(1)	3.53	6.32	2-2	(757)
4378.73	P	⊙	3.53	6.35	2-	a^1D-5°
4305.20	U	(1)	3.53	6.40	2-3	(759) $a^1D-u^3G^o$
4327.100	J	3	3.53	8.36	2-2	(760) $a^1D-y^1D^o$
4317.04	P	(1)	3.53	8.39	2-2	(761) $a^1D-x^1D^o$
4319.59	P	⊙	3.53	6.48	2-2	(762) $a^1D-u^3D^o$
4161.55	P	⊙	3.53	8.48	2-1	(763)
4151.957	V	(1)	3.53	6.50	2-2	$a^1D-t^3D^o$
4240.372	J	(2)	3.53	6.44	2-1?	(764)
4122.00	P	⊙	3.53	6.53	2-1	a^1D-6°
						(765)

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4112.09	P	⊙	3.53	8.53	2-2	$a^1D-v^3P^o$
•3966.532	V	(1n)	3.53	8.64	2-1	(766)
4059.728	V	3	3.53	8.57	2-1	$a^1D-z^1P^o$
3989.859	J	(2d)	3.53	8.82	2-3	(787) $a^1D-y^1F^o$
3973.855	J	3	3.53	8.84	2-3	(768) $a^1D-x^1F^o$
3953.50	P	⊙	3.53	6.65	2-3	(789) a^1D-10°
3645.692	J	(1)	3.53	8.74	2-3	(770) $a^1D-t^3G^o$
3682.228	J	20	3.53	6.88	2-2	(771) $a^1D-w^1D^o$
3677.309	J	2	3.53	8.89	2-3	(772) $a^1D-w^1F^o$
3636.23	W	(1)	3.53	8.93	2-3	(773) $a^1D-e^3G^o$
3538.31	W	(1)	3.53	7.02	2-2	(774) $a^1D-u^3F^o$
•3442.979	V	(1)	3.53	7.12	2-3	(775) $a^1D-t^3F^o$
3434.95	P	⊙	3.53	7.12	2-2	(778)
7094.30	P	⊙	3.56	5.30	5-5	$a^1H-y^5G^o$
6019.38	P	⊙	3.58	5.61	5-4	(778) $a^1H-y^3G^o$
5913.35	P	⊙	3.58	5.64	5-5	(780) $a^1H-x^5G^o$
5584.788	V	(1)	3.56	5.77	5-4	(781) $a^1H-u^3D^o$
5532.752	V	(1)	3.56	5.79	5-4	(782) $a^1H-x^3F^o$
•5466.993	V	(1)	3.56	5.82	5-4	(783) $a^1H-z^3H^o$
5374.78	P	⊙	3.56	5.85	5-5	(784) $a^1H-w^3G^o$
•5326.154	V	(1)	3.56	5.87	5-4	(785)
5365.403	J	3	3.56	5.86	5-4	$a^1H-z^1G^o$
5231.41	U	(1)	3.56	5.92	5-4	(786) $a^1H-v^5F^o$
5257.65	P	⊙	3.56	5.91	5-5	(787) $a^1H-x^3G^o$
5263.874	V	(1)	3.56	5.90	5-4	(788)
5150.19	P	⊙	3.56	5.95	5-5	$a^1H-w^3G^o$
5115.788	T	(1)	3.56	5.97	5-4	(789)
m5110.38	P	Fe	3.56	5.97	5-5	$a^1H-z^1H^o$
5028.129	J	4	3.56	6.01	5-4	(790) $a^1H-y^1G^o$
4927.42	W	(1)	3.56	6.06	5-4	(791) $a^1H-w^3F^o$
4849.87	P	⊙	3.56	6.10	5-6	(792) $a^1H-y^3H^o$
4809.94	V	(1)	3.56	6.12	5-5	(793)
4843.39	P	⊙	3.56	6.11	5-5	$a^1H-v^3G^o$
4804.529	V	(1)	3.56	6.13	5-4	(794)
4587.132	J	(2)	3.56	6.25	5-4	$a^1H-x^1G^o$
4502.592	V	(1)	3.56	6.30	5-6	(795) $a^1H-x^3H^o$
4493.37	P	(1)	3.58	6.30	5-5	(796)
4432.572	J	(3)	3.56	6.34	5-5	$a^1H-u^3G^o$
4375.48	P	⊙	3.56	6.38	5-4	(797)
4425.662	V	(1)	3.56	6.35	5-4	a^1H-4°
4382.777	V	(2)	3.56	6.37	5-5	(798) a^1H-6°
4201.73	W	(1)	3.56	6.50	5-5	(799a) $a^1H-w^3H^o$
4174.419	U	(1)	3.56	6.51	5-4	(799)
4219.364	B	12	3.56	6.48	5-6	$a^1H-y^3I^o$
4118.549	B	15	3.58	6.55	5-6	(800) $a^1H-z^1I^o$
4014.534	B	10	3.56	6.63	5-5	(801) $a^1H-y^1H^o$
3972.920	V	(1)	3.56	6.66	5-5	(802) $a^1H-t^3G^o$
3848.412	J	2	3.56	8.77	5-4	(803) $a^1H-w^1G^o$
•3748.492§	V	7	3.56	6.85	5-6	(804) $a^1H-v^3H^o$
3758.939	J	4	3.56	6.84	5-5	(605)
3743.468	J	6	3.56	6.85	5-5	$a^1H-x^1H^o$
3690.730	J	4	3.56	6.90	5-5	(808) $a^1H-s^3G^o$
3627.05	W	(1)	3.58	6.96	5-5	(807) $a^1H-u^3H^o$
3621.718	V	(2)	3.56	6.97	5-4	(606)
3599.824	G	3	3.56	8.99	5-4	$a^1H-u^3F^o$
3553.741	G	8	3.58	7.03	5-4	(809) $a^1H-v^1G^o$
3538.77	W	(1)	3.56	7.05	5-8	(610) $a^1H-x^3I^o$
3534.52	W	(1)	3.56	7.05	5-5	(811)
•3479.883	V	(1)	3.56	7.10	5-4	$a^1H-t^3F^o$
3169.09	P	⊙	3.56	7.45	5-6	(812) $a^1H-t^3H^o$
						(813)
8461.41	P	⊙	3.59	5.05	3-3	z^5P^o-X
8767.65	P	⊙	3.84	5.05	2-3	(614)
•7088.76	V	2	3.59	5.33	3-4	$z^5P^o-e^7I$
7156.502	V	1	3.64	5.36	2-3	(615)
6953.01	P	⊙	3.59	5.36	3-3	
7057.96	P	⊙	3.84	5.39	2-2	
7125.00	P	⊙?	3.67	5.40	1-1	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Fe I continued						
6400.010	I	600	3.59	5.52	3-4	$z^5P^o-e^5D$
6411.656	I	400	3.64	5.56	2-3	(616)
6406.031	I	60	3.67	5.60	1-2	
6246.334	K	15	3.59	5.56	3-3	
6301.515	K	15	3.64	5.60	2-2	
6336.635	K	12	3.67	5.62	1-1	
6141.734	K	4	3.59	5.60	3-2	
6232.661	K	5	3.64	5.62	2-1	
6302.507	K	6	3.67	5.63	1-0	
5456.48	W	(1)	3.59	5.65	3-4	$z^5P^o-e^5F$
•5466.993	V	(1)	3.64	5.90	2-3	(617)
5461.60	P	⊙	3.67	5.93	1-2	
5346.34	P	⊙	3.59	5.90	3-3	
5364.22	P	⊙	3.64	5.93	2-2	
5331.20	P	⊙	3.64	5.95	2-1	
5266.24	P	⊙	3.59	5.92	3-4	$z^5P^o-e^3F$
5133.22	P	⊙	3.59	5.99	3-3	(616)
4516.27	P	⊙	3.59	6.32	3-4	$z^5P^o-e^7F$
m4611.29	P	Fe	3.64	6.31	2-3	(619)
4626.69	P	⊙	3.67	6.34	1-2	
m4525.15	P	Fe	3.59	6.31	3-3	
4572.66	P	(1)	3.64	6.34	2-2	
4486.140	J	(2n)	3.59	6.34	3-2	
4596.74	P	⊙	3.64	6.32	2-1	
4596.059	K	(2n)	3.59	6.27	3-4	$z^5P^o-f^7D$
4673.169	J	(4)	3.64	6.26	2-3	(620)
4701.052	J	(1)	3.67	6.30	1-2	
4584.732	V	(1)	3.59	6.26	3-3	
4643.468	J	(2)	3.64	6.30	2-2	
4690.146	J	(3)	3.67	6.30	1-1	
•4556.129	J	4n	3.59	6.30	3-2	
4632.63	P	⊙	3.64	6.30	2-1	
4676.852	B	7	3.59	6.22	3-4	$z^5P^o-f^5D$
•4745.606	B	3n	3.64	6.24	2-3	(621)
4766.334	V	(1)	3.67	6.26	1-2	
•4654.626	J	5	3.59	6.24	3-3	
4709.092	J	(3)	3.64	6.26	2-2	
4727.405	J	3n	3.67	6.26	1-1	
4619.294	J	3n	3.59	6.26	3-2	
4669.174	J	(4)	3.64	6.26	2-1	
4704.958	J	(5)	3.67	6.29	1-0	
4667.459	B	6	3.59	6.23	3-4	$z^5P^o-e^7P$
4726.555	J	3n	3.64	6.25	2-3	(622)
4636.016	J	3	3.59	6.25	3-3	
4673.26	P	⊙	3.64	6.26	2-2	
4564.624	K	(2)	3.59	6.26	3-2	
4560.096	J	(2)	3.59	6.29	3-4	$z^5P^o-e^5G$
4596.433	U	(1)	3.64	6.32	2-3	(623)
4510.62	P	⊙	3.59	6.32	3-3	
4564.715	V	(1)	3.64	6.34	2-2	
4480.27	P	⊙	3.59	6.34	3-2	
4487.36	P	⊙	3.59	6.34	3-4	$z^5P^o-e^7G$
4482.20	P	⊙	3.59	6.35	3-3	(624)
•4461.989	J	(4)	3.59	6.35	3-4	$z^5P^o-f^5F$
4516.45	P	⊙	3.64	6.37	2-3	(625)
4433.793	J	(3n)	3.59	6.37	3-3	
4495.966	J	(1)	3.64	6.36	2-2	
4414.03	P	⊙	3.59	6.36	3-2	
4485.97	P	⊙	3.64	6.39	2-1	
4525.142	I	5n	3.59	6.31	3-2	$z^5P^o-e^5G$
4611.265	I	5n	3.64	6.31	2-2	(626)
4666.07	P	⊙	3.67	6.31	1-2	
4495.566	J	(1)	3.59	6.33	3-3	$z^5P^o-e^3D$
•4486.917	J	(2)	3.64	6.39	2-2	(627)
4481.621	J	(2)	3.67	6.42	1-1	
4580.600	K	(2)	3.64	6.33	2-3	
4542.730	V	(1)	3.67	6.39	1-2	
4484.227	I	4	3.59	6.34	3-4	$z^5P^o-g^5D$
4462.750	V	(2)	3.64	6.39	2-3	(628)
•4479.612	J	(3)	3.67	6.43	1-2	
4401.293	J	(5)	3.59	6.39	3-3	
m4427.30	P	Fe	3.64	6.43	2-2	
4446.642	J	(2)	3.67	6.45	1-1	
4347.654	V	(1)	3.59	6.43	3-2	
4395.266	V	(2)	3.64	6.45	2-1	
4436.353	K	(2)	3.67	6.45	1-0	
4440.479	V	(1)	3.59	6.37	3-3	$z^5P^o-e^7G$
4523.403	J	(2)	3.64	6.37	2-3	(629)
4366.412	J	4n	3.59	6.40	3-3	$z^5P^o-e^5P$
4423.656	V	(21)	3.64	6.43	2-2	(630)
4485.679	J	(2)	3.67	6.42	1-1	
4433.223	J	3n	3.64	6.42	2-1	
4469.381	I	5n	3.64	6.40	2-3	
4476.062	Q	(4)	3.67	6.43	1-2	
4107.75	P	⊙	3.59	6.59	3-4	$z^5P^o-g^5F$
4103.61	P	⊙	3.64	6.65	2-3	(631)
4035.25	P	⊙	3.59	6.65	3-3	
4147.49	P	⊙	3.59	6.56	3-3	$z^5P^o-f^5P$
4148.27	P	⊙	3.64	6.61	2-2	(632)
4087.79	P	⊙	3.64	6.66	2-1	
4219.74	P	⊙	3.64	6.56	2-3	
4117.71	U	(1)	3.64	6.64	2-3	$z^5P^o-f^3D$
4106.31	P	⊙	3.67	6.67	1-2	(633)
3901.03	P	⊙?	3.59	6.75	3-4	$z^5P^o-f^3F$
3696.63	P	⊙	3.64	6.61	2-3	(634)
Fe I continued						
3490.47	P	⊙	3.59	7.12	3-4	$z^5P^o-i^5D$
3526.96	P	⊙	3.64	7.14	2-3	(635)
•3476.336	V	(2w)	3.59	7.14	3-3	
3507.14	P	⊙	3.64	7.16	2-2	
•3457.090	V	(3w)	3.59	7.16	3-2	
3426.746	V	(2)	3.59	7.19	3-2	z^5P^o-4
3477.96	P	⊙	3.64	7.19	2-2	(636)
3510.16	P	⊙	3.67	7.19	1-2	
5961.36	P	⊙	3.62	5.66	6-6	$a^1I-z^3I^o$
						(637)
5649.66	V	(1)	3.62	5.60	6-5	$a^1I-z^3H^o$
						(638)
•5536.54	V	(1)	3.62	5.65	6-6	$a^1I-w^5G^o$
5531.14	P	(1)	3.62	5.65	6-5	(639)
5465.04	P	(1)	3.62	5.66	6-5	$a^1I-v^5F^o$
						(640)
5397.60	V	(1)	3.62	5.91	6-5	$a^1I-x^3G^o$
						(641)
5264.416	T	(-)	3.62	5.95	6-5	$a^1I-w^3G^o$
						(642)
5242.495	B	4	3.62	5.97	6-5	$a^1I-z^1H^o$
						(643)
4926.62	P	⊙	3.62	6.12	6-5	$a^1I-y^3H^o$
						(644)
4961.906	U	(1)	3.62	6.11	6-5	$a^1I-v^3G^o$
						(645)
4804.65	P	⊙	3.62	6.30	6-6	$a^1I-x^3H^o$
4595.21	P	⊙	3.62	6.30	6-5	(646)
•4531.633	J	(2)	3.62	6.34	6-5	$a^1I-u^3G^o$
						(647)
•4479.612	J	(3)	3.62	6.37	6-5	a^1I-6°
						(648)
4309.036	J	(2)	3.62	6.48	6-6	$a^1I-y^3I^o$
4238.61	P	⊙	3.62	6.53	6-5	(649)
4203.953	V	(1)	3.62	6.55	6-6	$a^1I-z^1I^o$
						(650)
4095.63	P	⊙	3.62	6.63	6-5	$a^1I-y^1H^o$
						(651)
•4052.312	J	(1)	3.62	6.66	6-5	$a^1I-t^3G^o$
						(652)
•4047.315	V	(1)	3.62	6.67	6-5	a^1I-12°
						(653)
3613.891	V	2	3.62	6.65	6-5	$a^1I-x^1H^o$
						(654)
3759.155	V	(1)	3.62	6.90	6-5	$a^1I-s^3G^o$
						(655)
3597.24	P	⊙	3.62	7.05	6-5	$a^1I-x^3I^o$
						(656)
11355.97	D	1	3.63	4.71	3-3	$b^3D-y^3D^o$
10725.19	P	⊙	3.62	4.77	2-2	(656)
10332.33	P	⊙	3.62	4.81	1-1	
7323.38	P	⊙?	3.63	5.31	3-4	$b^3D-y^5G^o$
7262.46	P	⊙?	3.63	5.33	3-3	(659)
6749.52	P	⊙	3.63	5.45	3-2	$b^3D-w^5D^o$
6603.67	P	⊙	3.62	5.49	1-0	(660)
6474.61	V	(1)	3.62	5.53	1-1	$b^3D-v^5D^o$
						(661)
6603.20	P	⊙	3.63	5.49	3-2	$b^3D-y^5G^o$
						(662)
6307.65	P	⊙	3.63	5.58	3-3	$b^3D-x^3D^o$
6301.66	P	⊙	3.62	5.56	2-3	(663)
6043.736	U	(1)	3.63	5.67	3-3	$b^3D-x^5G^o$
						(664)
5762.434	V	(1)	3.63	5.77	3-4	$b^3D-u^5D^o$
5754.41	V	(1)	3.63	5.77	3-3	(666)
5702.434	U	(1)	3.62	5.79	2-2?	
5707.25	P	⊙	3.63	5.79	3-2	
5609.97	P	⊙	3.62	5.62	2-1	
•5600.242	V	(1)	3.62	5.62	1-0	
5760.351	V	(1)	3.63	5.77	3-2	$b^3D-y^3P^o$
5696.05	W	(1)	3.62	5.79	2-1	(667)
5761.27	W	(1)	3.62	5.76	1-0	
5707.068	V	(1)	3.63	5.79	3-4	$b^3D-x^3F^o$
5636.708	V	(1)	3.62	5.81	2-3	(668)
5566.61	U	(1)	3.62	5.64	1-1	$b^3D-w^3D^o$
5660.79	W	(1)	3.62	5.60	2-3	(669)
5611.35	P	⊙	3.62	5.62	1-2	
5487.49	P	⊙	3.63	5.67	3-4	$b^3D-w^5G^o$
5452.119	U	(1)	3.62	5.69	2-3	(670)
5411.39	P	⊙	3.62	5.90	2-2	
5539.28	W	(1)	3.63	5.65	3-2	b^3D-1°
•5534.68	W	(1)	3.62	5.65	2-2	(671)
5529.15	W	(2)	3.63	5.66	3-4	$b^3D-z^1G^o$
						(672)
5493.33	P	⊙	3.62	5.67	2-1	$b^3D-y^3S^o$
5482.26	P	⊙	3.62	5.67	1-1	(673)
5431.40	P	⊙	3.63	5.90	3-4	$b^3D-x^3G^o$
5414.91	P	⊙	3.63	5.91	3-3	(674)
5366.956	T	(1)	3.63	5.92	3-4	$b^3D-v^5F^o$
5327.25	P	⊙	3.62	5.94	2-3	(675)
5264.27	P	⊙	3.62	5.96	1-2	
5294.555	T	(-)	3.62	5.96	2-2	
5253.25	P	⊙	3.62	5.97	1-1	
5296.769	V	(1)	3.63	5.96	3-2	
5315.76	P	⊙	3.62	5.95	2-2	$b^3D-v^5P^o$
5270.06	P	⊙	3.62	5.96	1-1	(677)
5320.048	V	(1)	3.63	5.95	3-2	
5305.41	P	⊙	3.62	5.95	1-2	
Fe I continued						
5260.364	V	(1)	3.63	5.96	3-2	$b^3D-x^3P^o$
5217.927	T	(2)	3.62	5.99	2-1	(860)
5223.191	V	(1)	3.62	5.96	1-0	
5207.95	P	(1)	3.62	5.99	1-1	
5066.26	P	⊙	3.62	6.06	1-2	b^3D-2°
						(662)
5065.201	V	(2)	3.63	6.06	3-4	$b^3D-w^3F^o$
5027.212	V	(1)	3.62	6.06	2-3	(663)
4970.496	V	(2)	3.62	6.10	1-2	
•5031.030	R	2	3.63	6.06	3-3	
4979.56	W	(1)	3.62	6.10	2-2	
5056.50	W	(1)	3.63	6.07	3-3	$b^3D-v^3D^o$
5054.647	T	1	3.62	6.07	2-3	(664)
5016.02	P	⊙	3.62	6.06	1-2	
5035.025	R	3	3.63	6.06	3-3	b^3D-3°
						(665)
4935.42	P	⊙	3.63	6.13	3-4	$b^3D-v^3G^o$
						(666)
4968.709	V	(1)	3.62	6.11	2-2	$b^3D-z^1D^o$
						(667)
•4802.883	J	(3)	3.63	6.20	3-2	$b^3D-w^3P^o$
•4832.734	J	(2)	3.62	6.16	2-1	(666)
•4845.656	V	(2)	3.62	6.17	1-0	
4799.412	V	(1)	3.62	6.20	2-2	
4824.162	V	(1)	3.62	6.16	1-1	
4706.972	V	(1)	3.62	6.24	2-3	$b^3D-z^1F^o$
						(669)
4706.31	P	⊙	3.63	6.25	3-4	$b^3D-x^1G^o$
						(690)
4490.63	P	⊙	3.62	6.37	2-3	$b^3D-u^5F^o$
4448.97	P	⊙	3.62	6.40	2-2	(691)
4605.99	P	⊙	3.63	6.31	3-4	$b^3D-t^5D^o$
4543.22	P	⊙	3.62	6.34	2-3	(693)
4481.04	P	⊙	3.62	6.37	1-2	
4419.30	P	⊙	3.62	6.41	1-0	
•4556.106	J	(1)	3.63	6.33	3-4	$b^3D-v^3F^o$
4542.422	V	(2)	3.62	6.34	2-3	(694)
4566.642	V	(1)	3.62	6.32	1-2	
4545.54	P	⊙	3.63	6.34	3-3	
4579.68	P	⊙	3.63	6.32	3-2	
4536.509	U	(1)	3.63	6.35	3-4	b^3D-4°
						(696)
4527.90	P	(1)	3.62	6.35	2-	b^3D-5°
						(697)
4483.76	P	⊙	3.63	6.36	3-4	$b^3D-u^3G^o$
4452.32	P	⊙	3.63	6.40	3-3	(696)
4479.01	P	⊙	3.63	6.36	3-3	$b^3D-u^5P^o$
4425.79	P	⊙	3.62	6.41	2-2	(699)
4366.6	W	(1w)	3.62	6.43	1-1	
4426.74	P	⊙	3.63	6.41	3-2	
4393.70	P	⊙	3.62	6.43	2-1	
m4475.99	P	Fe	3.62	6.36	2-3	
4416.60	P	⊙	3.62	6.41	1-2	
•4472.721	J	(2)	3.62	6.36	2-2	$b^3D-y^1D^o$
						(900)
4466.163	V	(1)	3.63	6.39	3-2	b^3D-7°
4463.16	P	⊙	3.62	6.39	2-2	(901)
•4461.989	J	(4)	3.62	6.39	2-2	$b^3D-x^1D^o$
4454.655	J	(1)	3.62	6.39	1-2	(902)
4360.613	V	(1)	3.63	6.46	3-2	$b^3D-u^3D^o$
						(903)
•4376.762	V	(1)	3.63	6.45	3-3	$b^3D-t^3D^o$
4365.632	V	(1)	3.62	6.50	2-2	(904)
4373.90	P	⊙	3.62	6.45	2-3	
4253.93	P	⊙	3.62	6.53	2-1	b^3D-6°
4247.29	P	⊙	3.62	6.53	1-1	(905)
4246.090	J	3	3.63	6.53	3-2	$b^3D-v^3P^o$
4066.567	V	(1)	3.62	6.64	2-1	(906)
4243.366	V	(2)	3.62	6.53	2-2	
4062.44	W	(2)	3.62	6.64	1-1	
4236.76	U	(1)	3.62	6.53	1-2	
4239.36	P	⊙	3.63	6.54	3-3	$b^3D-e^3D^o$
4236.68	P	⊙	3.62	6.54	2-3	(907)
4161.20	P	⊙.	3.62	6.57	1-1	$b^3D-z^1P^o$
						(906)
4172.97	P	⊙	3.63	6.58	3-4	b^3D-9°
						(909)
4115.69	P	⊙	3.63	6.62	3-3	$b^3D-y^1F^o$
						(910)
4096.116	V	(1)	3.62	6.64	2-3	$b^3D-x^1F^o$
						(911)
4074.70	P	⊙	3.62	6.65	2-3	b^3D-10°
						(912)
4020.490	V	(1)	3.63	6.70	3-4	$b^3D-t^3G^o$
3960.264	J	(1)	3.62	6.74	2-3	(913)
3962.65	P	⊙	3.63	6.74	3-3	
4058.48	P	⊙	3.63	6.67	3-3	b^3D-11°
4055.96	W	(1)	3.62	6.67	2-3	(914)
4010.16	W	(1)	3.63	6.70	3-4	b^3D-13°
						(915)
3767.164	J	(1)	3.62	6.66	2-2	$b^3D-w^1D^o$
						(916)
3761.936	J	(1)	3.62	6.69	2-3	$b^3D-w^1F^o$
						(917)
3767.73	P	⊙	3.63	6.90	3-4	$b^3D-s^3G^o$
3736.51	P	⊙	3.62	6.93	2-3	(916)

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3635.08	P	⊙?	3.62	7.02	2-2	$b^3D-u^3F^o$ (919)
3245.80	P	⊙	3.63	7.43	3-4	$b^3D-r^3G^o$
3224.05	P	⊙	3.62	7.45	2-3	(920)
•3225.607	U	(1)	3.63	7.45	3-3	
6451.58	V	(2)	3.68	5.59	4-5	$b^1G-y^3G^o$
6396.39	P	⊙	3.68	5.61	4-4	(921)
5849.67	P	⊙	3.68	5.79	4-4	$b^1G-x^3F^o$
•5780.83	V	(1)	3.68	5.81	4-3	(922)
5619.23	P	⊙?	3.68	5.87	4-4	$b^1G-w^5G^o$ (923)
5662.94	V	(1)	3.68	5.86	4-4	$b^1G-z^1G^o$ (924)
5513.86	P	⊙	3.68	5.92	4-4	$b^1G-v^5F^o$ (925)
5543.04	P	⊙	3.68	5.91	4-5	$b^1G-x^3G^o$
5549.94	U	(2)	3.68	5.90	4-4	(926)
5543.184	V	(2)	3.68	5.91	4-3	
5423.73	P	⊙	3.68	5.95	4-5	$b^1G-w^3G^o$
5385.58	P	⊙	3.68	5.97	4-4	(927)
5379.580	J	(2)	3.68	5.97	4-5	$b^1G-z^1H^o$ (928)
5288.533	V	(2)	3.68	6.01	4-4	$b^1G-y^1G^o$ (929)
5177.230	T	(-)	3.68	6.06	4-4	$b^1G-w^3F^o$
5141.55	P	⊙	3.68	6.08	4-3	(930)
5145.73	P	⊙	3.68	6.08	4-3	b^1G-3° (931)
5084.55	P	⊙	3.68	6.11	4-5	$b^1G-v^3G^o$ (932)
4809.14	V	(1)	3.68	6.24	4-3	$b^1G-z^1F^o$ (933)
•4802.883	J	(3)	3.68	6.25	4-4	$b^1G-x^1G^o$ (934)
4700.171	J	(2n)	3.68	6.30	4-5	$b^1G-x^3H^o$ (935)
•4579.344	V	(1)	3.68	6.37	4-5	b^1G-6° (936)
•4509.306	U	(1)	3.68	6.42	4-3	$b^1G-u^3D^o$ (937)
4382.02	P	⊙	3.68	6.50	4-5	$b^1G-w^3H^o$ (938)
4248.72	P	⊙?	3.68	6.58	4-4	b^1G-9° (939)
4189.564	U	(2)	3.68	6.62	4-3	$b^1G-y^1F^o$ (940)
4171.696	J	(2)	3.68	6.64	4-3	$b^1G-x^1F^o$ (941)
4149.49	P	⊙	3.68	6.65	4-3	b^1G-10° (942)
4090.75	P	⊙	3.68	6.70	4-4	$b^1G-t^3G^o$
4030.90	P	⊙	3.68	6.74	4-3	(943)
4080.08	P	⊙	3.68	6.70	4-4	b^1G-13° (944)
3996.968	J	2	3.68	6.77	4-4	$b^1G-w^1G^o$ (945)
3885.93	P	⊙	3.68	6.85	4-5	$b^1G-x^1H^o$ (946)
3846.29	P	⊙	3.68	6.89	4-3	$b^1G-w^1F^o$ (947)
3829.125	J	(1)	3.68	6.90	4-5	$b^1G-s^3G^o$ (948)
3754.89	P	⊙	3.68	6.97	4-4	$b^1G-u^3H^o$ (949)
3731.15	P	⊙	3.68	6.99	4-4	$b^1G-u^3F^o$
3704.80	P	⊙	3.68	7.01	4-3	(950)
3681.87	W	(1)	3.68	7.03	4-4	$b^1G-v^1G^o$ (951)
3661.25	P	⊙	3.68	7.05	4-5	$b^1G-x^3I^o$ (952)
3590.66	W	(1)	3.68	7.12	4-3	$b^1G-t^3F^o$ (953)
3291.44	P	⊙	3.68	7.43	4-4	$b^1G-r^3G^o$
3270.69	P	⊙	3.68	7.45	4-3	(954)
10452.70	D	5	3.86	5.05	4-3	z^3F^o-X (955)
8686.79	P	⊙	3.88	5.29	4-5	$z^3F^o-e^7D$
8801.78	P		3.93	5.33	3-4	(956)
7477.52	P	⊙	3.86	5.52	4-4	$z^3F^o-e^5D$
7541.61	U	(1)	3.93	5.56	3-3	(957)
7573.76	P	⊙	3.97	5.60	2-2	
7288.58	P	⊙	3.86	5.56	4-3	
7474.50	P	⊙	3.97	5.62	2-1	
7766.72	P	⊙	3.93	5.52	3-4	
6220.78	V	(1)	3.88	5.85	4-4	$z^3F^o-e^5F$
6419.65	P	⊙	3.93	5.85	3-4	(958)
6003.033	K	8	3.88	5.92	4-4	$z^3F^o-e^3F$
5978.799	K	5	3.93	5.99	3-3	(959)
5952.749	V	3	3.97	6.04	2-2	
5804.06	V	(1)	3.88	5.99	4-3	
5838.418	U	(1)	3.93	8.04	3-2	
8188.037	V	(2 ld)	3.93	5.92	3-4	
8096.889	V	(1)	3.97	5.99	2-3	
5119.90	P	⊙	3.88	6.28	4-5	$z^3F^o-e^7F$
5027.51	P	⊙	3.88	6.32	4-4	(960)
5168.19	P	⊙	3.93	6.31	3-3	
5126.598	U	(1)	3.86	6.27	4-4	$z^3F^o-f^7D$
5285.60	P	(1)	3.97	8.30	2-1	(981)
5213.80	P	⊙	3.93	8.29	3-4	$z^3F^o-e^5G$
5238.25	P	⊙	3.97	8.32	2-3	(982)
5081.88	P	⊙	3.86	8.29	4-4	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5050.13	P	⊙	3.86	6.31	4-5	$z^3F^o-f^5F$
5085.93	P	⊙	3.93	6.35	3-4	(963)
5168.18	P	⊙	3.93	6.31	3-2	$z^3F^o-e^5S$ (964)
5001.871	B	12	3.86	6.33	4-3	$z^3F^o-e^3D$
5014.950	J	10	3.93	6.39	3-2	(965)
5022.244	J	6	3.97	6.42	2-1	
5129.658	T	(1)	3.93	6.33	3-3	
5099.091	T	(1)	3.97	6.39	2-2	
5217.69	P	⊙	3.97	6.33	2-3	
4987.83	P	⊙	3.86	6.34	4-4	$z^3F^o-g^5D$
•5007.289	J	(3n)	3.93	6.39	3-3	(966)
5019.74	P	⊙	3.97	6.43	2-2	
4885.435	J	2	3.86	6.39	4-3	
4938.183	K	(2)	3.93	6.43	3-2	
4978.606	J	2	3.97	6.45	2-1	
5058.00	W	(1)	3.93	6.37	3-3	$z^3F^o-e^7S$ (967)
4933.878	Q	(1)	3.93	6.43	3-2	$z^3F^o-e^5P$
5027.34	P	⊙	3.97	6.42	2-1	(968)
5015.30	P	⊙	3.97	6.43	2-2	
4630.785	U	(1)	3.93	6.59	3-4	$z^3F^o-g^5F$
•4607.655	J	3n	3.97	6.65	2-3	(969)
4526.40	P	⊙	3.86	6.59	4-4	
4538.84	W	(2)	3.93	6.65	3-3	
4438.53	P	⊙	3.86	6.65	4-3	
4452.62	P	⊙	3.93	6.70	3-2	
4492.693	V	(1n)	3.97	6.71	2-1	
•4575.80	U	(1)	3.86	6.56	4-4	$z^3F^o-h^5D$
4598.37	P	⊙	3.93	6.61	3-3	(970)
•4495.386	V	(1)	3.86	8.81	4-3	
4511.04	P	⊙	3.93	6.66	3-2	
4544.50	P	⊙	3.97	6.68	2-1	
4593.544	U	(1)	3.93	6.61	3-2	$z^3F^o-f^5P$
4587.72	P	⊙	3.97	6.66	2-1	(971)
4551.667	U	(1)	3.93	6.64	3-4	$z^3F^o-f^5G$
4538.58	P	⊙	3.97	6.69	2-3	(972)
4450.77	P	⊙	3.86	6.64	4-4	
4471.81	P	(1)	3.93	6.69	3-3	
4429.32	U	(1)	3.93	6.71	3-2	
4456.63	P		3.86	6.63	4-5	$z^3F^o-e^3G$
•4490.773	J	(2n)	3.93	6.67	3-4	(973)
4494.05	P	⊙	3.97	6.71	2-3	
4392.58	U	(1)	3.86	6.67	4-4	
4428.57	P	⊙	3.93	6.71	3-3	
4455.032	J	(2)	3.86	6.64	4-3	$z^3F^o-f^3D$
•4490.773	J	(2n)	3.93	6.67	3-2	(974)
4479.97	P	⊙	3.97	6.72	2-1	
•4556.129	J	4n	3.93	6.64	3-3	
•4558.108	J	(1)	3.97	6.67	2-2	
4625.44	P	⊙	3.97	6.64	2-3	
4354.28	P	⊙	3.86	6.70	4-5	$z^3F^o-e^3H$
4394.31	P	⊙	3.93	6.73	3-4	(975)
4300.21	P	⊙	3.86	6.73	4-4	
4276.684	J	(1)	3.86	8.75	4-4	$z^3F^o-f^3F$
4286.976	V	(1)	3.93	6.81	3-3	(976)
4300.828	V	(1)	3.97	6.84	2-2	
4197.38	P	⊙	3.86	6.81	4-3	
4369.73	P	⊙	3.93	6.75	3-4	
3975.85	W	(1)	3.86	6.97	4-	z^3F^o-2 (977)
3742.14	P	⊙	3.93	7.22	3-4	$z^3F^o-g^5G$
3873.68	P	⊙	3.86	7.22	4-4	(978)
3848.22	P	⊙	3.86	7.25	4-3	
10469.59	D	20	3.87	5.05	3-3	z^3D^o-X
10532.21	D	10	3.91	5.08	2-2	(979)
10143.59	P	⊙	3.87	5.08	3-2	
10884.30	D	3	3.91	5.05	2-3	
10818.36	D	3	3.94	5.08	1-2	
7488.13	P	⊙	3.87	5.52	3-4	$z^3D^o-e^5D$
7474.80	P	⊙	3.91	5.58	2-3	(980)
7325.33	P	⊙	3.91	5.60	2-2	
6228.77	V	(1)	3.87	5.85	3-4	$z^3D^o-e^5F$
6221.40	V	(1)	3.91	5.80	2-3	(981)
6209.73	P	⊙	3.94	5.93	1-2	
6083.67	P	⊙	3.87	5.90	3-3	
6114.41	P	⊙	3.91	5.93	2-2	
6008.577	K	9	3.87	5.92	3-4	$z^3D^o-e^3F$
5934.658	K	5	3.91	5.99	2-3	(982)
5883.838	K	4	3.94	6.04	1-2	
5809.249	V	(2)	3.87	5.99	3-3	
5798.194	V	(2)	3.91	6.04	2-2	
5878.38	P	⊙	3.87	8.04	3-2	
5304.11	P	(1)	3.91	8.24	2-3	$z^3D^o-f^5D$
5277.59	P	(1)	3.94	8.28	1-1	(983)
5005.720	J	10	3.87	6.33	3-3	$z^3D^o-e^3D$
4985.261	J	7	3.91	8.39	2-2	(984)
4973.108	J	3	3.94	6.42	1-1	
4898.437	U	(1)	3.87	8.39	3-2	
4911.788	U	(1)	3.91	6.42	2-1	
5098.594	K	(3)	3.91	6.33	2-3	
5048.454	V	(2)	3.94	6.39	1-2	
4977.653	U	(1)	3.91	6.39	2-3	$z^3D^o-g^5D$
4970.88	P	⊙	3.94	6.43	1-2	(985)
4889.113	U	(2)	3.87	8.39	3-3	
4909.387	J	(1)	3.91	6.43	2-2	
4930.331	K	(2)	3.94	8.45	1-1	
4870.05	P	⊙	3.91	8.45	2-1	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4905.15	W	(1)	3.91	6.43	2-2	$z^3D^o-e^5P$
4978.11	P	⊙	3.94	6.42	1-1	(986)
4916.67	P	⊙	3.91	6.42	2-1	
4966.30	P	⊙	3.94	6.43	1-2	
4529.562	V	(1)	3.87	6.59	3-4	$z^3D^o-g^5F$
4479.00	P	⊙	3.94	6.70	1-2	(987)
4441.56	P	⊙	3.87	6.65	3-3	
4429.20	P	⊙	3.91	6.70	2-2	
4358.95	P	⊙	3.87	6.70	3-2	
4404.10	P	⊙	3.91	6.71	2-1	
4579.05	P	⊙	3.87	6.56	3-4	$z^3D^o-h^5D$
4498.54	P	⊙	3.87	6.61	3-3	(988)
4487.01	P	⊙	3.91	6.66	2-2	
4504.23	P	⊙	3.94	6.68	1-1	
4568.62	P	⊙	3.91	6.61	2-2	$z^3D^o-f^5P$
4546.68	P	⊙	3.94	6.66	1-1	(989)
4621.63	P	⊙	3.94	6.61	1-2	
4377.330	U	(1)	3.87	6.69	3-3	$z^3D^o-f^5G$
4336.60	P	⊙	3.87	6.71	3-2	(990)
•4395.514	V	(1w)	3.87	6.67	3-4	$z^3D^o-e^3G$
4405.40	P	⊙	3.91	6.71	2-3	(991)
4335.89	U	(1)	3.87	6.71	3-3	
4458.101	V	(3)	3.87	8.64	3-3	$z^3D^o-f^3D$
4466.939	V	(2)	3.91	6.67	2-2	(992)
4440.840	V	(1)	3.94	6.72	1-1	
•4395.514	V	(1w)	3.87	6.67	3-2	
4391.87	P	⊙	3.91	6.72	2-1	
•4531.633	J	(2)	3.91	6.64	2-3	
4517.60	P	⊙	3.94	6.67	1-2	
4279.480	V	(1)	3.87	6.75	3-4	$z^3D^o-f^3F$
•4265.260	J	(2)	3.91	6.81	2-3	(993)
4264.743	U	(1)	3.94	6.84	1-2	
4200.09	P	⊙	3.87	6.81	3-3	
4243.786	V	(1w)	3.87	6.77	3-2	$z^3D^o-e^3P$
4220.05	P	⊙	3.91	6.84	2-1	(994)
4310.37	P	⊙	3.91	6.77	2-2	
•4265.260	J	(2)	3.94	6.84	1-1	
4357.53	P	⊙	3.94	6.77	1-2	
3839.614	V	(2w)	3.94	7.16	1-2	$z^3D^o-i^5D$ (995)
3675.76	P	⊙	3.87	7.22	3-4	$z^3D^o-g^5G$
3699.41	P	⊙	3.91	7.25	2-3	(996)
3683.77	P	⊙	3.91	7.26	2-2	
3717.73	P	⊙	3.87	7.19	3-2	z^3D^o-4 (997)
9959.18	P	⊙	4.06	5.30	4-5	$c^3F-y^5G^o$ (998)
8096.874	E	10	4.06	5.58	4-3	$c^3F-x^3D^o$
8422.95	O	2	4.12	5.59	3-2	(999)
8481.96	P	⊙	4.17	5.62	2-1	
8466.54	P	⊙	4.12	5.58	3-3	
8680.77	P	⊙	4.17	5.59	2-2	
8727.10	P	⊙	4.17	5.58	2-3	
7537.44	P	⊙?	4.06	5.70	4-3	$c^3F-w^5P^o$
7967.03	P	⊙?	4.17	5.72	2-2	(1000)
7219.686	I	5	4.08	5.77	4-4	$c^3F-u^5D^o$
7498.56	V	1	4.12	5.77	3-3	(1001)
7617.97	P	⊙	4.17	5.79	2-2	
7207.123	V	6	4.06	5.77	4-3	
7418.674	E	5	4.12	5.79	3-2	
7454.02	V	(1)	4.17	5.82	2-1	
7512.17	P	⊙	4.12	5.77	3-4	
7132.989	I	8	4.06	5.79	4-4	$c^3F-x^3F^o$
•7307.938§	L	8	4.12	5.81	3-3	(1002)
7443.031	L	2	4.17	5.83	2-2	
7418.32	P	⊙	4.12	5.79	3-4	
7501.25	P	⊙	4.17	5.81	2-3	
7072.82	P	⊙	4.06	5.80	4-5	$c^3F-z^3H^o$
7300.59	P	⊙	4.12	5.82	3-4	(1003)
7024.084	V	5	4.06	5.82	4-4	
7068.415	I	40	4.06	5.80	4-3	$c^3F-w^3D^o$
7284.843	L	4	4.12	5.82	3-2	(1004)
7401.689	E	4	4.17	5.84	2-1	
7348.51	P	⊙	4.12	5.80	3-3	
7476.92	P	⊙	4.17	5.82	2-2	
6793.26	V	2	4.08	5.87	4-4	$c^3F-w^5G^o$
7000.633	V	3	4.12	5.89	3-3	(1005)
7107.481	I	4	4.17	5.90	2-2	
6745.96	P	⊙	4.08	5.89	4-3	
•6933.628	L	6	4.12	5.90	3-2	
6857.25	V	4	4.08	5.88	4-4	$c^3F-z^1G^o$
7120.56	P	⊙	4.12	5.88	3-4	(1006)
6785.88	P	⊙	4.08	5.88	4-5	$o^3F-v^5P^o$
6963.02	P	⊙	4.17	5.94	2-3	(1007)
6839.90	P	(2)	4.06	5.92	4-4	
8796.11	V	2	4.12	5.94	3-3	
6555.87	P	⊙	4.06	5.94	4-3	
6682.23	P	⊙	4.06	5.91	4-5	$o^3F-x^3G^o$
6942.82	P	⊙	4.12	5.90	3-4	(1008)
7105.90	P	⊙	4.17	5.91	2-3	
6623.78	P	⊙	4.06	5.92	4-3	$o^3F-v^5P^o$
•6777.44	V	1	4.12	5.95	3-2	(1010)
8509.58	V	(1)	4.08	5.95	4-5	$o^3F-w^3G^o$ (1012)

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
8713.14	V	6d	4.12	5.96	3-2	$o^3F-x^3P^o$
6777.44	V	1	4.17	5.99	2-1	(1013)
6875.98	V	1	4.17	5.96	2-2	
6315.814	V	(2)	4.06	6.01	4-4	$c^3F-y^1G^o$
						(1014)
6157.734	J	4	4.06	6.06	4-4	$c^3F-w^3F^o$
6315.318	J	(3)	4.12	6.08	3-3	(1015)
6380.748	I	3	4.17	8.10	2-2	
6107.32	P	⊙	4.06	6.08	4-3	
8240.266	U	(1)	4.12	6.10	3-2	
6147.85	V	(-)	4.06	6.07	4-3	$o^3F-v^3D^o$
8315.42	P	⊙	4.12	8.08	3-2	(1016)
6436.43	V	(1)	4.17	6.09	2-1	
•5975.355	J	4	4.06	6.12	4-5	$c^3F-y^3H^o$
•6137.913	J	(2)	4.12	6.14	3-4	(1017)
5931.89	P	⊙	4.08	8.14	4-4	
6027.057	B	4	4.08	6.11	4-5	$o^3F-v^3G^o$
6185.366	J	(2)	4.12	6.13	3-4	(1018)
6215.152	J	(2)	4.17	6.15	2-3	
6081.85	P	⊙	4.12	6.15	3-3	
6362.889	V	(2)	4.17	6.11	2-2	$c^3F-z^1D^o$
						(1019)
5959.878	U	(1)	4.12	6.20	3-2	$c^3F-w^3P^o$
						(1020)
5643.94	P	⊙	4.06	6.24	4-3	$c^3F-z^1F^o$
5943.11	P	⊙	4.17	6.24	2-3	(1021)
5811.93	V	(1)	4.12	6.25	3-4	$c^3F-x^1G^o$
						(1022)
5510.23	P	⊙	4.06	6.30	4-5	$c^3F-u^5F^o$
5563.69	P	⊙	4.12	6.34	3-4	(1023)
5333.15	P	⊙	4.06	6.37	4-3	
5494.468	V	(1)	4.06	6.30	4-5	$c^3F-x^3H^o$
						(1024)
5487.747	K	(8)	4.12	6.37	3-2	$o^3F-t^5D^o$
						(1025)
m5434.15	P	Fe	4.06	6.33	4-4	$c^3F-v^3F^o$
5568.71	P	⊙	4.12	6.34	3-3	(1026)
5408.38	P	⊙	4.06	6.34	4-3	
•5820.04	W	(1)	4.12	6.32	3-2	
5587.582	V	(1)	4.12	6.33	3-4	
5680.26	W	(1)	4.17	6.34	2-3	
5329.994	J	(2)	4.06	6.37	4-5	o^3F-6°
						(1028)
5403.823	V	(1)	4.06	6.34	4-5	$c^3F-u^3G^o$
5476.298	J	(2)	4.12	6.38	3-4	(1029)
•5535.419	J	(2)	4.17	6.40	2-3	
5319.22	P	⊙	4.06	6.38	4-4	
5429.43	P	⊙	4.12	8.40	3-3	
5275.00	W	(1n)	4.06	6.40	4-3	
5464.286	V	(1)	4.12	6.38	3-2	$c^3F-y^1D^o$
						(1030)
•5235.392	V	(2)	4.06	6.42	4-3	$c^3F-u^3D^o$
5293.973	V	(1)	4.12	6.46	3-2	(1031)
5332.673	V	(1)	4.17	6.48	2-1	
5387.51	R	3	4.12	6.42	3-3	
5394.682	T	(-)	4.17	6.46	2-2	
5491.84	W	(2)	4.17	6.42	2-3	
5169.30	P	⊙	4.06	6.45	4-3	$c^3F-t^3D^o$
5187.932	V	(2)	4.12	6.50	3-2	(1032)
5428.71	P	⊙	4.17	6.44	2-1?	
5317.53	P	⊙	4.12	6.45	3-3	
5284.62	P	⊙	4.17	6.50	2-2	
5164.922	8	(-)	4.12	6.51	3-4	$c^3F-w^3H^o$
						(1033)
5236.189	V	(1)	4.17	6.53	2-1	c^3F-8°
						(1034)
4978.70	P	⊙	4.06	6.54	4-3	$c^3F-s^3D^o$
5124.17	P	(1)	4.17	6.58	2-2	(1035)
5136.09	W	(1)	4.17	6.57	2-1	$c^3F-z^1P^o$
						(1036)
4887.37	P	⊙	4.06	6.58	4-4	c^3F-9°
						(1037)
4829.68	P	⊙?	4.12	6.68	3-2	$c^3F-t^5P^o$
4875.32	P	⊙	4.17	6.70	2-1	(1038)
4809.26	P	(1)	4.06	6.62	4-3	$c^3F-y^1F^o$
						(1039)
4912.52	P	⊙?	4.12	6.64	3-3	$c^3F-x^1F^o$
4999.114	T	(1)	4.17	6.64	2-3	(1040)
•4881.726	J	(2)	4.12	6.65	3-3	c^3F-10°
						(1041)
4735.846	J	(2)	4.06	6.66	4-5	$c^3F-t^3G^o$
4800.652	J	(2)	4.12	6.70	3-4	(1042)
4798.269	V	(1)	4.17	6.74	2-3	
4854.89	V	(1n)	4.12	6.67	3-3	c^3F-11°
4939.46	P	⊙	4.17	6.67	2-3	(1043)
4729.028	J	(1)	4.06	6.67	4-5	c^3F-12°
						(1043a)
4785.963	V	(1)	4.12	6.70	3-4	c^3F-13°
4665.56	P	⊙	4.06	6.70	4-4	(1044)
4672.02	P	⊙	4.12	6.77	3-4	$c^3F-w^1G^o$
						(1045)
4413.40	P	⊙	4.06	6.85	4-5	$c^3F-x^1H^o$
						(1046)
4546.47	P	⊙	4.17	6.88	2-2	$c^3F-w^1D^o$
						(1047)
4467.446	U	(1)	4.12	6.89	3-3	$c^3F-w^1F^o$
4538.95	P	⊙	4.17	6.89	2-3	(1048)
4152.07	P	⊙	4.06	7.03	4-4	$c^3F-v^1G^o$
						(1049)

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
8632.42	P	⊙	4.09	5.52	4-4	$y^5D^o-e^5D$
8652.50	P	⊙	4.14	5.56	3-3	(1050)
8355.16	P	⊙	4.09	5.56	4-3	
8950.20	P	⊙	4.14	5.52	3-4	
8878.76	P	⊙	4.17	5.56	2-3	
8834.04	P	⊙	4.20	5.60	1-2	
8779.12	P	⊙	4.21	5.62	0-1	
7187.341	E	800	4.09	5.80	4-5	$y^5D^o-e^5F$
7207.406	E	500	4.14	5.85	3-4	(1051)
7164.469	E	250	4.17	5.90	2-3	
7130.942	I	150	4.20	5.93	1-2	
7090.404	I	40	4.21	5.95	0-1	
6999.902	I	30	4.09	5.85	4-4	
7016.436	V	60	4.14	5.90	3-3	
7022.976	L	50	4.17	5.93	2-2	
7038.251	I	40	4.20	5.95	1-1	
6819.60	P	(1)	4.09	5.90	4-3	
6880.65	V	2	4.14	5.93	3-2	
8933.04	U	1	4.17	5.95	2-1	
6725.39	V	2	4.09	5.92	4-4	$y^5D^o-e^3F$
6653.88	V	(1)	4.14	5.99	3-3	(1052)
8916.702	I	60	4.14	5.92	3-4	
6786.88	V	5	4.17	5.99	2-3	
6704.48	P	(1)	4.20	6.04	1-2	
•5668.837	U	(1)	4.14	6.31	3-3	$y^5D^o-e^7F$
5703.09	P	⊙	4.17	6.34	2-2	(1053)
5815.42	P	⊙	4.20	6.32	1-1	
5737.71 ?	W	(1)	4.09	6.31	4-3	
5859.96	P	⊙	4.17	6.28	2-3	$y^5D^o-f^7D$
5760.53	P	⊙	4.14	6.28	3-3	(1054)
5813.33	P	⊙	4.17	6.30	2-2	
5715.47	P	⊙	4.14	6.30	3-2	
5796.67	P	⊙	4.17	6.30	2-1	
5871.289	U	(1)	4.14	6.24	3-3	$y^5D^o-f^5D$
5928.50	P	⊙	4.20	6.28	1-1	(1055)
5732.86	P	⊙	4.09	6.24	4-3	
5815.16	V	(1)	4.14	6.26	3-2?	
5893.24	P	⊙	4.20	6.29	1-0	
5974.62	P	⊙	4.17	6.24	2-3	
5844.879	U	(1)	4.14	6.25	3-3	$y^5D^o-e^7P$
5707.70	P	⊙	4.09	6.25	4-3	(1056)
5760.71	P	⊙	4.14	6.28	3-2	
5947.30	P	⊙	4.17	6.25	2-3	
5677.68	P	⊙	4.09	6.26	4-5	$y^5D^o-e^5G$
5721.70	P	⊙	4.14	6.29	3-4	(1057)
5739.78	P	⊙	4.17	6.32	2-3	
5761.08	P	⊙	4.20	6.34	1-2	
5644.35	P	⊙	4.14	6.32	3-3	
5516.29	P	⊙	4.09	6.32	4-3	
5607.66	P	⊙	4.14	6.34	3-4	$y^5D^o-e^7G$
5705.32	P	⊙	4.20	6.36	1-2	(1058)
5481.252	V	(2)	4.09	6.34	4-4	
5568.44	P	⊙	4.14	6.35	3-3	
5636.00	P	⊙	4.17	6.36	2-2	
5551.77	P	⊙	4.09	6.31	4-5	$y^5D^o-f^5F$
5568.07	P	⊙	4.14	6.35	3-4	(1059)
5652.01	P	⊙	4.20	6.38	1-2	
5443.41	P	⊙	4.09	6.35	4-4	
5524.25	P	(1)	4.14	6.37	3-3	
5583.97	P	⊙	4.17	6.38	2-2	
•5666.837	U	(1)	4.14	6.31	3-2	$y^5D^o-e^5S$
						(1060)
5493.508	V	(1)	4.09	6.33	4-3	$y^5D^o-e^3D$
5483.111	V	(1)	4.14	6.39	3-2	(1061)
5481.451	T	(3)	4.17	6.42	2-1	
5620.527	V	(1)	4.14	6.33	3-3	
5573.10	V	(1)	4.17	6.39	2-2	
5547.00	W	(2)	4.20	6.42	1-1	
•5715.107	V	(1)	4.17	6.33	2-3	
5579.34	P	⊙	4.21	6.42	0-1	
5476.571	J	10	4.09	6.34	4-4	$y^5D^o-g^5D$
5473.908	J	(3)	4.14	6.39	3-3	(1062)
5478.48	V	(1)	4.17	6.43	2-2	
•5493.850	T	(0)	4.20	6.45	1-1	
5353.386	V	(2)	4.09	6.39	4-3	
5391.493	V	(1)	4.14	6.43	3-2	
5429.52	P	⊙	4.17	6.45	2-1	
5480.872	V	(2)	4.20	6.45	1-0	
5602.788	V	(2)	4.14	6.34	3-4	
5563.604	I	3	4.17	6.39	2-3	
5543.930	J	(2)	4.20	6.43	1-2	
5525.552	V	(3)	4.21	6.45	0-1	
•5534.68	W	(1)	4.14	6.37	3-3	$y^5D^o-e^7S$
						(1063)
5334.32	P	⊙	4.09	6.40	4-3	$y^5D^o-e^5P$
5386.341	V	(1)	4.14	6.43	3-2	(1064)
5487.52	P	⊙	4.17	6.42	2-1	
5453.98	P	⊙	4.14	6.40	3-3	
5473.18	P	⊙	4.17	6.43	2-2	
5553.22	P	⊙	4.20	6.42	1-1	
5543.03	P	⊙	4.17	6.40	2-3	
•5538.54	V	(1)	4.20	6.43	1-2	
•5007.289	J	(3n)	4.09	6.55	4-5	$y^5D^o-g^5F$
5027.136	J	5n	4.14	6.59	3-4	(1065)
4991.277	J	(3)	4.17	6.65	2-3	
•4939.244	J	(2)	4.20	6.70	1-2	
4933.348	K	(2n)	4.21	6.71	0-1	
4925.28	W	(1)	4.09	6.59	4-4	
4887.189	K	(-)	4.17	6.70	2-2	
4983.855	J	6n	4.09	6.56	4-4	$y^5D^o-h^5D$
4988.963	J	(6)	4.14	6.61	3-3	(1066)
4957.68	P	⊙	4.17	6.66	2-2	
4969.927	J	(3)	4.20	6.68	1-1	
4888.651	V	(1)	4.09	6.61	4-3	
4886.335	J	(1)	4.14	6.66	3-2	
4917.25	W	(1)	4.17	6.68	2-1	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5088.16	P	(1)	4.14	6.56	3-4	$y^5D^o-h^5D$
5063.296	T	(-)	4.17	6.61	2-3?	(1066)
5011.24	P	⊙	4.20	6.66	1-2	cont
4982.507	J	8n	4.09	6.56	4-3	$y^5D^o-f^5P$
4983.258	J	5n	4.14	6.61	3-2	(1067)
4967.899	J	(3)	4.17	6.66	2-1	
5086.77	P	⊙	4.14	6.56	3-3	
•5057.49	W	(1)	4.17	6.61	2-2	
5021.68	P	⊙	4.20	6.66	1-1	
•4952.646	V	(1n)	4.09	6.58	4-5	$y^5D^o-f^5G$
4934.023	K	(2n)	4.14	6.64	3-4	(1068)
4910.328	J	(1w)	4.17	6.69	2-3	
4910.570	J	(1w)	4.20	6.71	1-2	
4835.862	K	(3)	4.09	6.64	4-4	
4840.329	V	(1n)	4.14	6.89	3-3	
4859.12	W	(1)	4.17	6.71	2-2	
•4745.806	B	3n	4.09	6.69	4-3	
4790.56	P	⊙	4.14	6.71	3-2	
4842.78	V	(1)	4.09	6.63	4-5	$y^5D^o-e^3G$
4862.60	P	⊙	4.14	6.67	3-4	(1069)
4858.24	P	⊙	4.17	8.71	2-3	
m4840.89	P	T1	4.09	6.64	4-3	$y^5D^o-f^3D$
4862.54	P	⊙	4.14	6.67	3-2	(1070)
4841.80	W	(1)	4.17	6.72	2-1	
•4939.244	J	(2)	4.14	6.64	3-3	
4933.19	P	⊙	4.17	6.67	2-2	
4892.86	W	(1)	4.20	6.72	1-1	
5012.16	P	⊙	4.17	6.64	2-3	
4986.24	W	(1)	4.20	6.67	1-2	
4918.03	W	(1)	4.21	6.72	0-1	
4631.03	P	⊙	4.09	6.75	4-4	$y^5D^o-f^3F$
4538.20	P	⊙	4.09	6.81	4-3	(1071)
•4720.997	J	(1)	4.14	6.75	3-4	
4688.38	P	⊙	4.17	6.81	2-3	
4679.96	P	⊙	4.20	6.84	1-2	
4677.59	P	⊙	4.14	6.77	3-2	$y^5D^o-e^3P$
4742.93	P	⊙	4.17	6.77	2-2	(1072)
4135.77	U	(1)	4.17	7.16	2-2	$y^5D^o-1^5D$
4044.49	P	⊙	4.09	7.14	4-3	(1073)
4085.98	W	(1)	4.14	7.16	3-2	
4163.35	P	⊙	4.17	7.14	2-3	
4172.97	P	⊙	4.20	7.16	1-2	
3970.99	P	⊙	4.09	7.19	4-5	$y^5D^o-g^5G$
3996.79	P	⊙	4.14	7.22	3-4	(1074)
4046.46	P	⊙	4.14	7.19	3-2	y^5D^o-4
4095.27	P	⊙	4.17	7.19	2-2	(1075)
4131.75	P	⊙	4.20	7.19	1-2	
9103.64	F	1	4.16	5.52	5-4	$y^5F^o-e^5D$
•9070.42	F	2	4.20	5.56	4-3	(1076)
9084.20	P	1	4.24	5.60	3-2	
7511.045	E	800	4.16	5.80	5-5	$y^5F^o-e^5F$
7495.088	E	400	4.20	5.85	4-4	(1077)
7445.776	E	200	4.24	5.90	3-3	
7411.178	E	100	4.26	5.93	2-2	
7389.425	E	80	4.28	5.95	1-1	
7306.61	V	3	4.16	5.85	5-4	
7288.760	I	10	4.20	5.90	4-3	
7293.068	I	15	4.24	5.93	3-2	
7311.101	I	12	4.26	5.95	2-1	
7710.390	E	25	4.20	5.80	4-5	
7661.223	E	30	4.24	5.85	3-4	
7568.925	E	30	4.26	5.90	2-3	
7491.678	L	12	4.28	5.93	1-2	
7008.014	V	5	4.16	5.92	5-4	$y^5F^o-e^3F$
6898.31	V	3	4.20	5.99	4-3	(1078)
6847.60	P	(1)	4.24	6.04	3-2	
7181.222	L	10	4.20	5.92	4-4	
7038.818	V	2	4.24	5.99	3-3	
6951.62	P	(1)	4.26	6.04	2-2	
7333.62	V	1n	4.24	5.92	3-4	
•7148.69	R	(-)	4.26	5.99	2-3	
7022.39	P	⊙	4.28	6.04	1-2	
•6005.53	V	(1)	4.16	6.21	5-6	$y^5F^o-e^7F$
•6021.82	W	(2n)	4.26	6.31	2-3	(1079)
6008.35	P	⊙	4.28	6.34	1-2	
5992.65	P	⊙?	4.16	6.22	5-5	$y^5F^o-f^7D$
5961.91	P	⊙	4.20	6.27	4-4	(1080)
6060.81	P	⊙	4.20	6.24	4-3	$y^5F^o-f^5D$
6107.09	P	(1)	4.24	6.26	3-2	(1081)
6032.67	V	(1)	4.20	6.25	4-3	$y^5F^o-e^7P$
•6127.913	J	(2)	4.26	6.28	2-2	(1082)
5940.972	V	(2)	4.16	6.24	5-6	$y^5F^o-e^5G$
5996.49	P	⊙	4.26	6.32	2-3	(1083)
5877.770	U	(1)	4.16	6.26	5-5	
5901.53	P	⊙	4.20	6.29	4-4	
5918.93	P	(1)	4.24	6.32	3-3	
5742.95	P	(1)	4.16	6.31	5-5	$y^5F^o-f^5F$
5738.22	P	⊙	4.20	6.35	4-4	(1084)
5786.99	P	⊙	4.24	6.37	3-3	
5826.64	P	⊙	4.26	6.38	2-2	
5859.20	V	(1)	4.28	6.39	1-1	
5627.08	P	⊙	4.16	6.35	5-4	
5691.69	P	⊙	4.20	6.37	4-3	
5753.38	P	⊙	4.24	6.38	3-2	
5809.88	P	⊙	4.26	6.39	2-1	
5858.77	P	⊙	4.20	6.31	4-5	
5835.10	P	⊙	4.24	6.35	3-4	
5861.11	P	⊙	4.26	6.37	2-3	
5876.27	P	⊙	4.28	6.38	1-2	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5943.62	P	⊙	4.24	6.31	3-2	$y^5F^o-e^5S$
*6031.82	W	(2n)	4.26	6.31	2-2	(1085)
5793.932	V	(2)	4.20	6.33	4-3	$y^5F^o-e^3D$
5741.861	V	(2)	4.24	6.39	3-2	(1086)
*5715.107	V	(1)	4.26	6.42	2-1	
5893.71	W	(2)	4.24	6.33	3-3	
5814.80	V	(1)	4.26	6.39	2-2	
5762.84	P	⊙	4.28	6.42	1-1	
5969.554	U	(2)	4.26	6.33	2-3	
5864.24	P	(1)	4.28	6.39	1-2	
5662.525	B	6	4.16	6.34	5-4	$y^5F^o-g^5D$
5638.266	I	3	4.20	6.39	4-3	(1087)
5641.464	V	(2)	4.24	6.43	3-2	
5658.67	P	⊙	4.26	6.45	2-1	
5691.509	V	(1)	4.28	6.45	1-0	
5775.090	J	(5)	4.20	6.34	4-4	
5731.771	J	(3)	4.24	6.39	3-3	
5711.867	V	(2)	4.26	6.43	2-2	
5705.48	V	(1)	4.28	6.45	1-1	
5873.211	V	(2)	4.24	6.34	3-4	
5804.478	U	(1)	4.26	6.39	2-3	
*5759.56	P	(2)	4.28	6.43	1-2	
5617.14	P	⊙	4.20	6.40	4-3	$y^5F^o-e^5P$
5635.85	V	(1)	4.24	6.43	3-2	(1088)
5731.71	P	⊙	4.26	6.42	2-1	
5709.93	P	⊙	4.24	6.40	3-3	
5706.11	P	⊙	4.26	6.43	2-2	
5162.288	J	10n	4.16	6.55	5-5	$y^5F^o-g^5F$
5165.422	J	(4)	4.20	6.59	4-4	(1089)
5136.218	T	(1)	4.24	6.65	3-3	
5072.077	K	(1)	4.26	6.70	2-2	
5076.288	T	(2)	4.28	6.71	1-1	
5075.17	P	⊙	4.16	6.59	5-4	
5051.29	P	⊙	4.20	6.65	4-3	
5016.48	P	⊙	4.24	6.70	3-2	
5255.68	P	⊙	4.20	6.55	4-5	
5243.798	V	(1)	4.24	6.59	3-4	
5184.292	U	(3n)	4.26	6.65	2-3	
5109.662	V	(2)	4.28	6.70	1-2	
5137.388	J	6n	4.16	6.56	5-4	$y^5F^o-h^5D$
5125.130	J	6n	4.20	6.61	4-3	(1090)
5090.787	K	(6n)	4.24	6.66	3-2	
5104.47	P	(1)	4.26	6.68	2-1	
*5329.857	J	5n	4.20	6.56	4-4	
5202.27 ↑	W	(1)	4.24	6.61	3-3	
5148.061	V	(3)	4.26	6.66	2-2	
*5142.541	J	(3w)	4.28	6.68	1-1	
5228.408	V	(1n)	4.20	6.56	4-3	$y^5F^o-r^5P$
5196.100	V	(2w)	4.24	6.61	3-2	(1091)
5159.066	V	(2w)	4.26	6.66	2-1	
5308.71	P	⊙	4.24	6.56	3-3	
5255.76	P	⊙	4.26	6.61	2-2	
5197.93	P	⊙	4.28	6.66	1-1	
5133.692	J	20n	4.16	6.56	5-6	$y^5F^o-f^5G$
5195.471	K	(8)	4.20	6.58	4-5	(1092)
*5142.541	J	(3w)	4.24	6.64	3-4	
5096.998	J	(6)	4.26	6.69	2-3	
5079.002	V	(1n)	4.28	6.71	1-2	
5104.21	U	(1)	4.16	6.58	5-5	
5067.162	V	(1)	4.20	6.64	4-4	
*5040.902	V	(2)	4.24	6.69	3-3	
4986.90	P	⊙	4.24	6.71	3-2	
5085.68	P	⊙	4.16	6.59	5-6	$y^5F^o-e^5H$
5040.25	P	⊙	4.20	6.65	4-5	(1093)
5021.60	P	⊙	4.24	6.70	3-4	
5012.68	P	⊙	4.26	6.73	2-3	
4954.30	P	⊙	4.16	6.65	5-5	
4866.77	P	⊙?	4.16	6.70	5-4	
4987.62	P	⊙	4.18	6.63	5-5	$y^5F^o-e^3G$
4991.86	P	⊙	4.20	6.67	4-4	(1094)
4985.98	P	⊙	4.24	6.71	3-3	
5074.757	J	10n	4.20	6.63	4-5	
5065.020	J	6n	4.24	6.67	3-4	
*5040.902	V	(2)	4.26	6.71	2-3	
5072.690	T	(1)	4.20	6.64	4-3	$y^5F^o-f^3D$
5064.95	P	⊙	4.24	6.67	3-2	(1095)
5023.226	T	(-)	4.26	6.72	2-1	
5148.234	U	(3)	4.24	6.64	3-3	
5121.646	V	(2n)	4.26	6.67	2-2	
*5060.079	T	(1)	4.28	6.72	1-1	
5206.80	P	⊙	4.26	6.64	2-3	
5159.95	P	⊙	4.28	6.67	1-2	
4972.39	P	(1)	4.16	6.64	5-5	$y^5F^o-g^7D$
4893.59	P	⊙	4.16	6.68	5-4	(1096)
4906.80	P	⊙	4.20	6.72	4-3	
4962.564	U	(1)	4.16	6.65	5-6	$y^5F^o-e^3H$
4942.59	P	⊙	4.24	6.73	3-4	(1097)
4872.91	P	⊙	4.20	6.73	4-4	
4749.25	P	⊙	4.24	6.84	3-2	$y^5F^o-f^3F$
4842.71	P	⊙	4.20	6.75	4-4	(1098)
*4807.243	S	(-)	4.24	6.81	3-3	
4799.06	P	⊙	4.26	6.84	2-2	
4911.52	P	⊙	4.24	6.75	3-4	
4858.27	P	⊙	4.26	6.81	2-3	
*4832.734	J	(2)	4.28	6.84	1-2	
4465.33	P	(1)	4.20	6.97	4-5	y^5F^o-1 (1099)
4460.55	P	⊙?	4.20	6.97	4-	y^5F^o-2 (1100)
4384.13	P	⊙?	4.20	7.02	4-4	y^5F^o-3 (1101)
4285.71	P	⊙	4.20	7.12	4-4	$y^5F^o-1^5D$
4256.79	U	(1)	4.24	7.14	3-3	(1102)
4278.01	P	⊙	4.24	7.12	3-4	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4113.972	J	3n	4.16	7.16	5-6	$y^5F^o-g^5G$
4125.622	J	(1)	4.20	7.19	4-5	(1103)
4132.54	P	⊙	4.24	7.22	3-4	
4137.42	P	⊙	4.26	7.25	2-3	
4142.628	V	(1N)	4.28	7.26	1-2	
4067.85	P	⊙	4.16	7.19	5-5	
4083.71	P		4.20	7.22	4-4	
4100.35	P	⊙	4.24	7.25	3-3	
*4117.872	V	(1)	4.26	7.26	2-2	
4185.66	P	⊙	4.24	7.19	3-2	y^5F^o-4
4224.30	P	⊙	4.26	7.19	2-2	(1104)
7239.885	I	6	4.19	5.90	2-3	$z^3P^o-e^5F$
7311.26	P	⊙	4.24	5.93	1-2	(1105)
7095.425	I	3	4.19	5.93	2-2	
7213.84	P	⊙	4.24	5.95	1-1	
5955.682	U	(1)	4.24	6.31	1-2	$z^3P^o-e^5S$ (1106)
5762.992	K	10	4.19	6.33	2-3	$z^3P^o-e^3D$
5753.136	J	5	4.24	6.39	1-2	(1107)
5717.845	L	(3)	4.27	8.42	0-1	
5618.646	V	(1)	4.19	6.39	2-2	
*5655.506	V	4	4.24	6.42	1-1	
m5525.48	P	Fe	4.19	6.42	2-1	
5608.98	P	⊙	4.19	6.39	2-3	$z^3P^o-g^5D$
5652.32	V	(1)	4.24	6.43	1-2	(1108)
5661.36	W	(1)	4.27	6.45	0-1	
5522.46	V	(2)	4.19	6.43	2-2	
*5600.242	V	(1)	4.24	6.45	1-1	
5472.720	V	(1)	4.19	6.45	2-1	
5588.07	P		4.19	6.40	2-3	$z^3P^o-e^5P$
5646.70	P	⊙	4.24	6.43	1-2	(1109)
5724.445	U	(1)	4.27	6.42	0-1	
5517.08	W	(1n)	4.19	6.43	2-2	
5661.97	P	⊙	4.24	6.42	1-1	
5027.785	T	(-)	4.19	6.65	2-3	$z^3P^o-g^5F$
5025.08	P	⊙	4.24	6.70	1-2	(1110)
5041.33	P	⊙	4.27	6.71	0-1	
4922.18	P	⊙	4.19	6.70	2-2	
4992.80	P	⊙	4.24	6.71	1-1	
4993.687	U	(1)	4.19	6.66	2-2	$z^3P^o-h^5D$
5056.856	U	(1)	4.24	6.68	1-1	(1111)
*4952.846	V	(1n)	4.19	6.68	2-1	
5205.31	P	⊙	4.24	6.61	1-2	$z^3P^o-r^5P$
5004.034	T	(1)	4.19	6.66	2-1	(1112)
4945.65	W	(1)	4.19	6.69	2-3	$z^3P^o-r^5G$
4995.41	P	⊙	4.24	6.71	1-2	(1113)
4893.70	P	⊙	4.19	6.71	2-2	
4720.56	P	⊙?	4.19	6.81	2-3	$z^3P^o-r^3F$ (1114)
4775.87	P		4.19	6.77	2-2	$z^3P^o-e^3P$
*4757.582	J	(2)	4.24	6.84	1-1	(1115)
4665.24	P	⊙	4.19	6.84	2-1	
4872.69	P	⊙	4.24	6.77	1-2	
4801.63	P	⊙	4.27	6.84	0-1	
4160.78	P	⊙	4.19	7.16	2-2	$z^3P^o-1^5D$ (1116)
8356.07	P	⊙	4.28	5.75	2-1	$b^1D-z^3S^o$ (1117)
7820.80	P	⊙	4.28	5.85	2-2	b^1D-1° (1118)
6756.56	P	⊙	4.28	6.10	2-2	$b^1D-w^3F^o$ (1120)
6571.22	U	(1)	4.28	6.15	2-3	$b^1D-v^3G^o$ (1121)
6736.56	P	⊙	4.28	6.11	2-2	$b^1D-z^1D^o$ (1122)
6267.845	U	(1)	4.28	6.24	2-3	$b^1D-z^1F^o$ (1123)
5883.06	P	⊙?	4.28	6.37	2-2	$b^1D-t^5D^o$ (1124)
6035.34	P	⊙?	4.28	6.32	2-2	$b^1D-v^3F^o$
5976.18	P	⊙	4.28	6.34	2-3	(1125)
5816.07	P	⊙?	4.28	6.40	2-3	$b^1D-u^3G^o$ (1127)
5856.084	V	(2)	4.28	6.38	2-2	$b^1D-y^1D^o$ (1128)
5837.709	V	(1)	4.28	6.39	2-2	$b^1D-x^1D^o$ (1129)
5539.831	U	(1)	4.28	6.50	2-2	$b^1D-t^3D^o$
5698.37	W	(2)	4.28	6.44	2-1	(1130)
5469.09	P	⊙	4.28	6.53	2-2	$b^1D-v^3P^o$ (1131)
5376.849	U	(2)	4.28	6.57	2-1	$b^1D-z^1P^o$ (1132)
4734.100	J	(1)	4.28	6.88	2-2	$b^1D-w^1D^o$ (1133)
4725.94	V	(1n)	4.28	6.89	2-3	$b^1D-w^1F^o$ (1134)
4333.06	P	⊙	4.28	7.12	2-2	$b^1D-t^3F^o$ (1135)
8220.406	E	1500	4.30	5.80	6-5	$z^5G^o-e^5F$
7937.186	E	700	4.29	5.85	5-4	(1136)
7998.972	E	700	4.35	5.90	4-3	
8046.073	E	600	4.40	5.93	3-2	
8085.200	E	500	4.43	5.95	2-1	
8179.03	O	(1)	4.29	5.80	5-5	
8248.151	E	30	4.35	5.85	4-4	
8232.347	E	50	4.40	5.90	3-3	
8207.787	E	40	4.43	5.93	2-2	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
8509.63	P	⊙	4.35	5.80	4-5	$z^5G^o-e^5F$
8496.51	P	⊙	4.40	5.85	3-4	(1136)
8401.68	P	⊙	4.43	5.90	2-3	cont
7586.044	E	150	4.29	5.92	5-4	$z^5G^o-e^3F$
7531.171	E	60	4.35	5.99	4-3	(1137)
7507.300	L	8	4.40	6.04	3-2	
7869.65	O	4	4.35	5.92	4-4	
7737.67	P	⊙	4.40	5.99	3-3	
7647.83	P	⊙	4.43	6.04	2-2	
6428.80	V	(1)	4.35	6.27	4-4	$z^5G^o-r^7D$ (1138)
6543.98	U	(1)	4.35	6.24	4-3	$z^5G^o-r^5D$ (1139)
6376.22	P	⊙	4.30	6.24	6-6	$z^5G^o-e^5G$
6303.46	V	(1n)	4.30	6.26	6-5	(1140)
6351.29	P	⊙	4.29	6.24	5-6	
6472.15	P	⊙?	4.35	6.26	4-5	
6148.65	P	⊙	4.30	6.31	6-5	$z^5G^o-r^5F$ (1141)
6034.04	P	(2)	4.29	6.34	5-4	$z^5G^o-g^5D$
6054.100	U	(2)	4.35	6.39	4-3	(1142)
6081.72	P	⊙	4.40	6.43	3-2	
6212.04	V	(1)	4.35	6.34	4-4	
5381.637	U	(1)	4.40	6.70	3-2	$z^5G^o-g^5F$
5395.25	W	(1n)	4.43	6.71	2-1	(1143)
5469.29	P	⊙	4.29	6.55	5-5	
5512.277	V	(1)	4.35	6.59	4-4	
5487.16	V	(1)	4.40	6.65	3-3	
5432.950	U	(2n)	4.43	6.70	2-2	
5615.18	P	⊙	4.35	6.55	4-5	
5441.321	U	(1)	4.29	6.56	5-4	$z^5G^o-h^5D$
5466.404	J	(3)	4.35	6.61	4-3	(1144)
5446.58	P		4.40	6.66	3-2	
5470.17	W	(1)	4.43	6.68	2-1	
5520.19	P	⊙?	4.43	6.66	2-2	
5455.433	K	(5)	4.30	6.56	6-6	$z^5G^o-r^5G$
m5404.12	P	Fe	4.29	6.58	5-5	(1145)
5400.509	J	(5)	4.35	6.64	4-4	
5389.461	K	(5)	4.40	6.69	3-3	
5398.285	V	(1)	4.43	6.71	2-2	
5422.15	P	⊙	4.30	6.58	6-5	
5265.42	P	⊙	4.29	6.64	5-4	
5327.86	P	⊙?	4.40	6.71	3-2	
5437.19	P	⊙	4.29	6.56	5-6	
5546.512	V	(1)	4.35	6.58	4-5	
5505.893	T	(-)	4.40	6.64	3-4	
5461.54	W	(1n)	4.43	6.69	2-3	
5424.072	I	45n	4.30	6.58	6-7	$z^5G^o-e^5H$
5383.374	I	35n	4.29	6.59	5-6	(1146)
5369.965	I	25n	4.35	6.65	4-5	
5367.470	I	20n	4.40	6.70	3-4	
5364.874	I	15n	4.43	6.73	2-3	
5401.27	P	⊙	4.30	6.59	6-6	
5236.38	P	⊙	4.29	6.65	5-5	
5267.28	P	⊙	4.35	6.70	4-4	
5295.316	U	(1)	4.40	6.73	3-3	
5290.79	P		4.30	6.63	6-5	$z^5G^o-e^3G$
5184.17	P	⊙	4.29	6.67	5-4	(1147)
5273.62	P	⊙	4.29	6.63	5-5	
5315.07	W	(1)	4.35	6.67	4-4	
5326.793	T	(-)	4.40	6.71	3-3	
5409.125	V	(1)	4.35	6.63	4-5	
5406.77	P	⊙	4.35	6.64	4-3	$z^5G^o-r^3D$
5417.03	W	(1)	4.40	6.67	3-2	(1148)
5512.40	P	⊙	4.40	6.64	3-3	
5489.85	P	⊙	4.43	6.67	2-2	
5262.61	P	⊙	4.30	6.65	6-6	$z^5G^o-e^3H$
5130.91	P	⊙	4.29	6.70	5-5	(1149)
5056.00	W	(1)	4.29	6.73	5-4	
5245.62	P	⊙	4.29	6.65	5-6	
5259.09	P	⊙	4.35	6.70	4-5	
5277.31	P	⊙	4.40	6.73	3-4	
5023.476	T	(-)	4.29	6.75	5-4	$z^5G^o-r^3F$
5031.901	R	8	4.35	6.81	4-3	(1150)
*5057.49	W	(1)	4.40	6.84	3-2	
5146.30	P	⊙	4.35	6.75	4-4	
5123.28	P	⊙	4.40	6.81	3-3	
5120.89	P	⊙	4.43	6.84	2-2	
5241.90	P	(1)	4.40	6.75	3-4	
4618.568	V	(2w)	4.29	6.97	5-5	z^5G^o-1 (1151)
4631.49	W	(1)	4.35	7.02	4-4	z^5G^o-3 (1152)
8598.79	O	4	4.37	5.80	5-5	$z^3G^o-e^5F$
8610.62	P	⊙	4.42	5.85	4-4	(1153)
8562.13	P	⊙	4.45	5.90	3-3	
8331.941	E	200	4.37	5.85	5-4	
8339.431	E	80	4.42	5.90	4-3	
8360.822	E	8	4.45	5.93	3-2	
8896.00	P	⊙	4.42	5.80	4-5	
8848.25	P		4.45	5.85	3-4	
7945.878	E	600	4.37	5.92	5-4	$z^3G^o-e^3F$
7832.224	E	400	4.42	5.99	4-3	(1154)
7780.586	E	300	4.45	6.04	3-2	
8198.951	E	80	4.42	5.92	4-4	
8028.341	E	50	4.45	5.99	3-3	
8414.08	P	⊙	4.45	5.92	3-4	
6681.34	P	⊙	4.37	6.21	5-6	$z^3G^o-e^7F$
6635.68	P	⊙	4.42	6.28	4-5	(1155)
6615.03	P	⊙	4.45	6.32	3-4	
6665.42	P	⊙	4.37	6.22	5-5	$z^3G^o-f^7D$
m6646.90	P	Fe	4.42	6.27	4-4	(1156)
6700.89	P	⊙	4.45	6.30	3-2	
6787.61	P	⊙	4.45	6.27	3-4	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Fe I continued						
5622.41	P	⊙	4.37	6.23	5-4	$z^3G^o-e^7P$
5735.00	P	⊙	4.42	6.25	4-3	(1157)
5879.51	P	⊙	4.45	6.25	3-3	
5438.775	U	(1)	4.42	6.33	4-3	$z^3G^o-e^3D$ (1158)
5653.889	U	(1w)	4.37	6.55	5-5	$z^3G^o-g^5F$
5631.72	U	(2)	4.45	6.65	3-3	(1159)
5549.55	P	⊙	4.37	6.59	5-4	
5499.60	P	⊙	4.45	6.70	3-2	
5780.83	V	(1)	4.42	6.55	4-5	
5624.056	V	(1)	4.37	6.56	5-4	$z^3G^o-h^5D$
5589.00	P	⊙↑	4.45	6.66	3-2	(1160)
5749.65	P	⊙	4.42	6.56	4-4	
5723.66	P	(1)	4.45	6.61	3-3	
5619.60	V	(1)	4.37	6.56	5-6	$z^3G^o-f^5G$
5708.109	V	(1)	4.42	6.58	4-5	(1161)
5651.47	P	⊙	4.45	6.64	3-4	
5553.586	V	(1)	4.42	6.64	4-4	
5528.89	P	⊙	4.45	6.69	3-3	
5436.299	U	(1)	4.37	6.64	5-4	
5435.17	P	⊙	4.42	6.69	4-3	
5562.12	P	⊙	4.37	6.59	5-6	$z^3G^o-e^5H$
5521.28	P	⊙	4.42	6.65	4-5	(1162)
5505.75	P	⊙	4.45	6.70	3-4	
5405.35	P	⊙	4.37	6.65	5-5	
5412.80	P	⊙	4.42	6.70	4-4	
5429.83	P	⊙	4.45	6.73	3-3	
5301.33	P	⊙	4.37	6.70	5-4	
5339.40	P	⊙	4.42	6.73	4-3	
5445.045	J	15n	4.37	6.63	5-5	$z^3G^o-e^3G$
5463.282	J	10n	4.42	6.67	4-4	(1163)
5462.970	J	(2)	4.45	6.71	3-3	
5349.742	T	(3)	4.37	6.67	5-4	
5371.43	P	Fe	4.42	6.71	4-3	
5562.712	V	(2)	4.42	6.63	4-5	
5557.954	V	(1)	4.45	6.67	3-4	
5560.230	V	(1)	4.42	6.64	4-3	$z^3G^o-f^3D$
5557.90	P	⊙	4.45	6.87	3-2	(1164)
5415.201	I	35n	4.37	6.65	5-6	$z^3G^o-e^3H$
5404.144	I	30n	4.42	6.70	4-5	(1165)
5410.913	I	15n	4.45	6.73	3-4	
5293.03	P	⊙	4.37	6.70	5-5	
5321.106	V	(1)	4.42	6.73	4-4	
5313.35	P	⊙	4.37	6.73	5-4	
5178.798	U	(1n)	4.37	6.75	5-4	$z^3G^o-f^3F$
5164.56	W	(1)	4.42	6.81	4-3	(1166)
5180.065	T	(-)	4.45	6.84	3-2	
5285.12	P	⊙	4.42	6.75	4-4	
5249.099	U	(1n)	4.45	6.81	3-3	
5373.704	V	(1)	4.45	6.75	3-4	
4838.81	P	⊙?	4.42	6.97	4-5	z^3G^o-1 (1167)
4744.13	P	⊙↑	4.37	6.97	5-	z^3G^o-2 (1168)
4534.62	P	⊙	4.42	7.14	4-3	$z^3G^o-1^5D$
4566.03	P	⊙	4.45	7.16	3-2	(1169)
4367.07	P	⊙	4.37	7.19	5-5	$z^3G^o-g^5G$
4320.13	P	⊙↑	4.37	7.22	5-4	(1170)
4357.50	P	⊙	4.42	7.25	4-3	
9786.62	F	2	4.59	5.85	3-4	$y^3F^o-e^5F$
9350.46	E	10	4.53	5.85	4-4	(1171)
9437.91	F	2	4.59	5.90	3-3	
8866.961	E	150	4.53	5.92	4-4	$y^3F^o-e^3F$
8793.376	E	120	4.59	5.99	3-3	(1172)
8764.000	E	100	4.63	6.04	2-2	
8439.603	E	20	4.53	5.99	4-3	
8497.00	O	8	4.59	6.04	3-2	
9258.30	E	20	4.59	5.92	3-4	
9079.599	E	8	4.63	5.99	2-3	
6843.671	I	60	4.53	6.33	4-3	$y^3F^o-e^3D$
6858.164	K	40	4.59	6.39	3-2	(1173)
6885.772	L	20	4.63	6.42	2-1	
7074.45	P	⊙	4.59	6.33	3-3	
7031.02	P	⊙	4.63	6.39	2-2	
6881.07	P	⊙	4.63	6.43	2-2	$y^3F^o-g^5D$
6627.558	L	5	4.53	6.39	4-3	(1174)
6715.410	V	5	4.59	6.43	3-2	
6804.020	V	5	4.63	6.45	2-1	
6105.15	P	⊙	4.53	6.55	4-5	$y^3F^o-g^5F$
6159.409	U	(1n)	4.59	6.59	3-4	(1175)
5983.704	K	8	4.53	6.59	4-4	
5997.808	V	(1)	4.59	6.65	3-3	
5973.37	P	⊙	4.63	6.70	2-2	
5848.09	W	(2n)	4.59	6.70	3-2	
5927.798	V	(2w,d)	4.63	6.71	2-1	
6079.02	V	(1)	4.63	6.86	2-2	$y^3F^o-h^5D$
5929.700	U	(1)	4.53	6.61	4-3	(1176)
5949.35	V	(2)	4.59	6.66	3-2	
6018.34	P	⊙	4.63	6.68	2-1	
8251.26	P	⊙	4.59	6.56	3-4	
6093.66	V	(1)	4.59	6.61	3-2	$y^3F^o-f^5P$
6094.419	U	(1)	4.63	6.66	2-1	(1177)
6024.066	K	15	4.53	6.58	4-5	$y^3F^o-f^5G$
6020.173	K	10n	4.59	6.64	3-4	(1178)
6007.961	K	(3n)	4.63	6.69	2-3	
5852.19	W	(2n)	4.53	6.64	4-4	
5881.28	P	⊙	4.59	6.69	3-3	
5720.89	P	⊙	4.53	6.69	4-3	
5807.97	P	⊙	4.59	6.71	3-2	
Fe I continued						
5816.36	V	(3d)	4.53	6.65	4-5	$y^3F^o-e^5H$
5855.126	V	(1)	4.59	6.70	3-4	(1179)
5891.16	P	⊙	4.63	6.73	2-3	
5696.10	P	⊙	4.53	6.70	4-4	
5769.31	P	(1)	4.59	6.73	3-3	
5862.357	K	8	4.53	6.63	4-5	$y^3F^o-e^3G$
•5914.16	V	8	4.59	6.67	3-4	(1180)
5930.173	K	8	4.63	6.71	2-3	
5752.043	J	(2)	4.53	6.67	4-4	
5806.727	V	(2)	4.59	6.71	3-3	
5650.31	P	⊙	4.53	6.71	4-3	
5859.608	K	5	4.53	6.64	4-3	$y^3F^o-f^3D$
•5914.16	V	8	4.59	6.67	3-2	(1181)
5905.673	K	3n	4.63	6.72	2-1	
5686.532	V	(3)	4.53	6.70	4-5	$y^3F^o-e^3H$
5747.95	V	(1)	4.59	6.73	3-4	(1182)
5594.661	V	(2)	4.53	6.73	4-4	
5554.895	I	4	4.53	6.75	4-4	$y^3F^o-f^3F$
5565.708	I	4	4.59	6.81	3-3	(1183)
5598.303	J	4	4.63	6.84	2-2	
5421.85	P	⊙	4.53	6.81	4-3	
5488.14	P	⊙	4.59	6.84	3-2	
5705.988	V	(2)	4.59	6.75	3-4	
5679.023	V	(2)	4.63	6.81	2-3	
5642.75	P	⊙	4.59	6.77	3-2	$y^3F^o-e^3P$
5759.270	U	(1)	4.63	6.77	2-2	(1184)
5057.83	P	⊙	4.53	6.97	4-	y^3F^o-2 (1185)
6930.35	P	⊙	4.54	6.32	3-4	$y^5P^o-e^7F$
•7145.317	V	5	4.59	6.31	2-3	(1186)
•6951.261	I	25	4.54	6.31	3-3	
7053.48	P		4.59	6.34	2-2	
6864.31	P	⊙	4.54	6.34	3-2	
7115.25	P	⊙↑	4.59	6.32	2-1	
7120.01	P	⊙	4.54	6.27	3-4	$y^5P^o-f^7D$
7295.00	V	1	4.59	6.28	2-3	(1187)
7356.81	P	⊙	4.62	6.30	1-2	
•7232.88	V	(1)	4.59	6.30	2-2	
7330.16	P	⊙	4.62	6.30	1-1	
7024.649	V	10n	4.54	6.30	3-2	
‡7320.694§	L	5n	4.54	6.22	3-4	$y^5P^o-f^5D$
7473.56	O	(1)	4.59	6.24	2-3	(1188)
7361.54	V	3n	4.54	6.24	3-3	
7382.99	V	1n	4.59	6.26	2-2	
7421.60	O	1	4.62	6.28	1-1	
7175.937	V	3	4.54	6.26	3-2	
7385.286	V	1	4.59	6.28	2-1	
7366.37	O	1	4.62	6.29	1-0	
7292.856	V	3n	4.54	6.23	3-4	$y^5P^o-e^7P$
7430.90	M	1	4.59	6.25	2-3	(1189)
7431.94	P	⊙	4.62	6.28	1-2	
7221.22	V	2n	4.54	6.25	3-3	
7295.27	P	⊙	4.59	6.28	2-2	
7093.10	P	⊙	4.54	6.28	3-2	
7034.06	P	⊙	4.54	6.29	3-4	$y^5P^o-e^5G$
7109.67	P	⊙	4.59	6.32	2-3	(1190)
7161.04	P	⊙	4.62	6.34	1-2	
6917.52	P		4.54	6.32	3-3	
7034.08	P	⊙	4.59	6.34	2-2	
6845.93	P	⊙	4.54	6.34	3-2	
6862.481	V	4n	4.54	6.34	3-4	$y^5P^o-e^7G$
6989.64	P	⊙	4.59	6.35	2-3	(1191)
6803.84	P	⊙	4.54	6.35	3-3	
6803.30	P	⊙	4.54	6.35	3-4	$y^5P^o-f^5F$
6920.16	P	⊙	4.59	6.37	2-3	(1192)
6838.08	V	4nl	4.54	6.37	3-3	
6692.47	P	1	4.54	6.38	3-2	
6848.86	P	⊙	4.59	6.39	2-1	
•6951.261	I	25	4.54	6.31	3-2	$y^5P^o-e^5S$
•7145.317	V	5	4.59	6.31	2-2	(1193)
6881.74	M	1	4.54	6.33	3-3	$y^5P^o-e^3D$
6855.74	V	2	4.59	6.39	2-2	(1194)
6833.24	V	1	4.62	6.42	1-1	
6676.86	P	⊙	4.54	6.39	3-2	
6717.556	V	3	4.59	6.42	2-1	
7071.88	V	1	4.59	6.33	2-3	
6976.308	V	1	4.62	6.39	1-2	
6855.176	I	150	4.54	6.34	3-4	$y^5P^o-g^5D$
6841.349	I	80	4.59	6.39	2-3	(1195)
6828.610	I	50	4.62	6.43	1-2	
6663.26	V	(1)	4.54	6.39	3-3	
•6713.14	V	6d	4.59	6.43	2-2	
6752.724	L	10	4.62	6.45	1-1	
6541.49	P		4.54	6.43	3-2	
6639.71	P	4	4.59	6.45	2-1	
6733.164	L	6	4.62	6.45	1-0	
6753.45	P	⊙	4.54	6.37	3-3	$y^5P^o-e^7S$
6936.48	P	⊙	4.59	6.37	2-3	(1196)
6633.764	K	50	4.54	6.40	3-3	$y^5P^o-e^5P$
6705.117	I	15n	4.59	6.43	2-2	(1197)
6842.668	V	6n	4.62	6.42	1-1	
6533.97	V	8n	4.54	6.43	3-2	
6726.668	V	20n	4.59	6.42	2-1	
6810.28	V	20n	4.59	6.40	2-3	
6820.43	O	8n	4.62	6.43	1-2	
6012.75	P	⊙	4.54	6.59	3-4	$y^5P^o-g^5F$
5995.93	P	⊙	4.59	6.65	2-3	(1198)
5933.80	P	⊙	4.62	6.70	1-2	
5715.80	P	⊙	4.54	6.70	3-2	
Fe I continued						
6100.29	P	(1)	4.54	6.56	3-4	$y^5P^o-h^5D$
6100.23	P		4.59	6.61	2-3	(1199)
•5958.22	P	(2)	4.54	6.61	3-3	
5947.50	P	(1)	4.59	6.66	2-2	
5978.17	P	⊙	4.62	6.68	1-1	
6098.28	P	⊙	4.54	6.56	3-3	$y^5P^o-f^5P$
6091.74	P	⊙	4.59	6.61	2-2	(1200)
5950.13	P	⊙	4.54	6.61	3-2	
5880.00	V	(2wd)	4.54	6.64	3-4	$y^5P^o-f^5G$
5879.49	P	⊙	4.59	6.69	2-3	(1201)
5892.46	P	⊙	4.62	6.71	1-2	
5640.46	W	(1n)	4.54	6.73	3-3	$y^5P^o-e^5H$ (1202)
5887.46	P	⊙	4.54	6.64	3-3	$y^5P^o-f^3D$
5867.01	P	⊙	4.62	6.72	1-1	(1203)
5778.81	P	⊙	4.54	6.67	3-2	
•5759.57	P	(2)	4.54	6.68	3-4	$y^5P^o-g^7D$
5727.75	U	(1)	4.59	6.74	2-2	(1204)
•5620.04	W	(1)	4.54	6.73	3-4	$y^5P^o-e^3H$ (1205)
4776.34	V	(1n)	4.54	7.12	3-4	$y^5P^o-1^5D$
4839.77	P	⊙	4.59	7.14	2-3	(1206)
4749.93	V	(1)	4.54	7.14	3-3	
4802.53	P	⊙	4.59	7.16	2-2	
4714.074	V	(1n)	4.54	7.16	3-2	
4661.538	J	(2n)	4.54	7.19	3-2	y^5P^o-4 (1207)
10333.24	P	⊙	4.57	5.77	4-4	$d^3F-u^5D^o$
10307.48	P	⊙	4.57	5.77	4-3	(1208)
10156.50	P	⊙	4.57	5.79	4-4	$d^3F-x^3F^o$
9881.51	P	1	4.56	5.81	3-3	(1209)
9747.24	F	2	4.56	5.83	2-2	
9950.70	P	⊙	4.57	5.81	4-3	
10084.42	P	⊙	4.56	5.79	3-4	
9937.10	P	⊙	4.57	5.82	4-4	$d^3F-z^3H^o$ (1210)
10026.10	P		4.57	5.80	4-3	$d^3F-w^3D^o$
9839.38	F	1	4.56	5.82	3-2	(1211)
9771.06	P	⊙	4.56	5.84	2-1	
9955.85	P	⊙	4.56	5.80	3-3	
9636.69	Y	(1)	4.57	5.85	4-5	$d^3F-w^5G^o$ (1212)
9225.55	O	(1)	4.56	5.90	3-4	$d^3F-x^3G^o$ (1213)
8848.46	P	⊙	4.56	5.96	2-2	$d^3F-v^5F^o$ (1214)
8576.50	P	⊙	4.57	6.01	4-4	$d^3F-y^1G^o$
8525.04	P	⊙	4.56	6.01	3-4	(1215)
8253.78	P	⊙	4.56	6.06	2-2	d^3F-2° (1216)
•8149.59	O	3	4.56	6.08	3-3	$d^3F-w^3F^o$
8002.55	P	⊙	4.56	6.10	2-2	(1217)
8196.52	P	⊙	4.57	6.08	4-3	
8269.66	P	⊙	4.57	6.07	4-3	$d^3F-v^3D^o$
•8149.59	O	3	4.56	6.08	3-2	(1218)
7129.30	P	⊙	4.57	6.30	4-5	$d^3F-x^3H^o$ (1219)
7125.28	P	⊙	4.57	6.31	4-4	$d^3F-t^5D^o$
6949.37	P		4.56	6.34	3-3	(1220)
6805.72	P	⊙	4.56	6.37	2-2	
6983.53	P	⊙	4.57	6.34	4-3	
6822.00	P	1	4.56	6.37	3-2	
6711.24	P	⊙	4.56	6.40	2-1	
7089.73	P	⊙	4.56	6.31	3-4	
6932.49	P	⊙	4.56	6.34	2-3	
7011.364	V	3	4.57	6.33	4-4	$d^3F-v^3F^o$
•6947.501	V	3	4.56	6.34	3-3	(1221)
7010.362	V	2	4.56	6.32	2-2	
7027.60	V	(1)	4.56	6.32	3-2	
6976.934	V	3	4.56	6.33	3-4	
6930.64	V	1	4.56	6.34	2-3	
6960.334	V	2	4.57	6.35	4-4	d^3F-4°
6926.40	P	⊙	4.56	6.35	3-4	(1222)
•6947.501	V	3	4.57	6.35	4-	d^3F-5° (1224)
6854.82	V	2	4.57	6.37	4-5	d^3F-6° (1224a)
6977.445	V	4	4.57	6.34	4-5	$d^3F-u^3G^o$
6804.27	V	3	4.56	6.38	3-4	(1225)
6716.24	V	3	4.56	6.40	2-3	
6837.00	O	3	4.57	6.38	4-4	
6732.06	V	1	4.56	6.40	3-3	
6764.13	P	⊙	4.57	6.40	4-3	
6785.76	P	⊙	4.56	6.38	3-2	$d^3F-y^1D^o$
6769.66	P	⊙	4.56	6.38	2-2	(1226)
6761.07	P	⊙	4.56	6.39	3-2	$d^3F-x^1D^o$
6745.11	V	1	4.56	6.39	2-2	(1227)
6699.14	V	2	4.57	6.42	4-3	$d^3F-u^3D^o$
6667.73	V	(1)	4.56	6.42	3-3	(1228)
6591.32	V	2	4.57	6.45	4-3	$d^3F-t^3D^o$
6364.717	V	(1)	4.56	6.50	3-2	(1229)
6306.19	P	⊙	4.57	6.53	4-5	$d^3F-y^3I^o$ (1230)
6271.52	P	⊙	4.56	6.53	3-2	$d^3F-v^3P^o$
5926.83	P	⊙	4.56	6.64	2-1	(1231)
6016.95	P	⊙	4.57	6.62	4-3	$d^3F-y^1F^o$
5991.58	P	⊙	4.56	6.62	3-3	(1232)

Fe I continued

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
5955.12	P	⊙	4.56	6.64	3-3	$d^3F-x^1F^o$
5942.71	P	⊙	4.56	6.64	2-3	(1233)
5902.52	V	(1)	4.57	6.66	4-5	$d^3F-t^3G^o$
5791.53	P	⊙	4.56	6.70	3-4	(1234)
5661.03	P	⊙	4.56	6.74	2-3	
5815.23	P	(1)	4.57	6.70	4-4	
5672.28	P	(1)	4.56	6.74	3-3	
5895.007	U	(1)	4.57	6.67	4-3	d^3F-11°
5870.65	P	⊙	4.56	6.67	3-3	(1235)
5891.89	P	(1)	4.57	6.67	4-5	d^3F-12° (1236)
5793.70	P	⊙	4.57	6.70	4-4	d^3F-13°
5770.17	P	⊙	4.56	6.70	3-4	(1236a)
5438.04	P	⊙	4.57	6.84	4-5	$d^3F-v^3H^o$
5412.56	P	⊙	4.56	6.84	3-4	(1237)
5313.839	T	(-)	4.56	6.88	2-2	$d^3F-w^1D^o$ (1238)
5313.41	P	⊙	4.56	6.89	3-3	$d^3F-w^1F^o$ (1239)
5300.41	P	⊙	4.57	6.90	4-5	$d^3F-s^3G^o$
5281.18	P	⊙	4.56	6.90	3-4	(1240)
5218.51	P	⊙	4.56	6.93	2-3	
5170.08	P	⊙	4.57	6.96	4-5	$d^3F-u^3H^o$ (1241)
5114.52	P	⊙	4.57	6.99	4-4	$d^3F-u^3F^o$
5047.14	P	⊙	4.56	7.01	3-3	(1242)
5019.18	P	⊙	4.56	7.02	2-2	
5096.17	P	⊙	4.56	6.99	3-4	
4875.72	P	⊙	4.57	7.10	4-4	$d^3F-t^3F^o$
4837.65	P	⊙	4.56	7.12	3-3	(1243)
4813.72	P	⊙	4.56	7.12	2-2	
4854.18	P	⊙	4.57	7.12	4-3	
4369.29	P	⊙	4.57	7.40	4-5	$d^3F-r^3G^o$ (1244)
4253.55	P	⊙	4.57	7.47	4-5	$d^3F-t^3H^o$
4203.67	P	⊙	4.56	7.50	3-4	(1245)
10863.60	D	5	4.71	5.85	3-4	$y^3D^o-e^5F$
11013.27	D	1	4.77	5.90	2-3	(1246)
10435.38	P	⊙	4.71	5.90	3-3	
10216.351	E	100	4.71	5.92	3-4	$y^3D^o-e^3F$
10145.601	E	80	4.77	5.99	2-3	(1247)
10065.080	E	60	4.81	6.04	1-2	
9653.143	E	20	4.71	5.99	3-3	
9753.129	E	10	4.77	6.04	2-2	
9297.14	P	⊙	4.71	6.04	3-2	
8016.51	P	⊙	4.77	6.31	2-2	$y^3D^o-e^5S$ (1249)
7620.538	E	25	4.71	6.33	3-3	$y^3D^o-e^3D$
7653.783	L	6	4.77	6.39	2-2	(1250)
7664.15	P	⊙	4.81	6.42	1-1	
7370.16	O	1	4.71	6.39	3-2	
7481.93	P	(1)	4.77	6.42	2-1	
7924.14	P	⊙	4.77	6.33	2-3	
7844.55	P	2	4.81	6.39	1-2	
7353.528	V	1	4.71	6.39	3-3	$y^3D^o-g^5D$
7476.40	P	(1)	4.77	6.43	2-2	(1251)
7563.03	O	1n	4.81	6.45	1-1	
7205.51	P	⊙	4.71	6.43	3-2	
7385.54	P	⊙	4.77	6.45	2-1	
7196.37	P	⊙	4.71	6.43	3-2	$y^3D^o-e^5P$ (1252)
6569.231	I	50n	4.71	6.59	3-4	$y^3D^o-g^5F$
6597.607	V	15n	4.77	6.65	2-3	(1253)
6385.74	P	⊙	4.71	6.65	3-3	
m6416.94	P	Fe+	4.77	6.70	2-2	
6495.779	U	3	4.81	6.71	1-1	
6364.384	V	(1)	4.77	6.71	2-1	
6673.84	P	⊙	4.71	6.56	3-4	$y^3D^o-h^5D$
6604.67	V	(1)	4.81	6.68	1-1	(1254)
6330.856	U	(1n)	4.71	6.66	3-2	
6468.86	P	⊙	4.77	6.68	2-1	
6671.43	P		4.71	6.56	3-3	$y^3D^o-f^5P$
6713.76	V	3n	4.77	6.61	2-2	(1255)
6696.30	P	⊙	4.81	6.66	1-1	
6494.52	P	⊙	4.71	6.61	3-2	
6556.79	U	(1)	4.77	6.66	2-1	
6860.13	P	⊙	4.81	6.61	1-2	
6411.10	P	1n	4.71	6.64	3-4	$y^3D^o-f^5G$
6456.87	P	⊙	4.77	6.69	2-3	(1256)
6253.82	P	⊙	4.71	6.69	3-3	
6171.01	P	⊙	4.71	6.71	3-2	
6224.23	P	⊙?	4.71	6.70	3-4	$y^3D^o-e^5H$ (1257)
6419.982	K	30n	4.71	6.64	3-3	$y^3D^o-f^3D$
6496.456	K	20n	4.77	6.67	2-2	(1258)
6469.214	I	15n	4.81	6.72	1-1	
6290.968	I	3n	4.71	6.67	3-2	
6338.896	V	(1n)	4.77	6.72	2-1	
6634.10	P	4n	4.77	6.64	2-3	
6633.44	M	4n	4.81	6.67	1-2	
6055.987	K	4	4.71	6.75	3-4	$y^3D^o-f^3F$
6078.496	K	4n	4.77	6.81	2-3	(1259)
6102.178	K	5	4.81	6.84	1-2	
5896.212	U	(1)	4.71	6.81	3-3	

Fe I continued

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
5984.805	K	8	4.71	6.77	3-2	$y^3D^o-e^3P$
5987.057	K	6	4.77	6.84	2-1	(1260)
•5975.355	J	4	4.81	6.88	1-0	
6170.492	K	4n	4.77	6.77	2-2	
6103.190	K	3	4.81	6.84	1-1	
6293.92	P	⊙	4.81	6.77	1-2	
m8920.02	P	Fe	4.89	6.28	4-5	$x^5D^o-e^7F$
•9157.08	P	(2)	4.97	6.31	2-3	(1261)
9328.64	P	⊙	5.00	6.32	0-1	
8643.29	P	⊙	4.89	6.32	4-4	
9006.72	F	1	4.97	6.34	2-2	
9253.72	P	⊙	4.99	6.32	1-1	
9298.05	P	⊙	4.89	6.22	4-5	$x^5D^o-f^7D$
9178.57	F	1n	4.93	6.28	3-3	(1262)
9392.77	P	⊙	4.99	6.30	1-1	
9242.32	F	2	4.97	6.30	2-1	
9259.05	F	15	4.89	6.22	4-4	$x^5D^o-f^5D$
9462.97	F	2	4.93	6.24	3-3	(1263)
9550.90	F	2	4.97	6.26	2-2	
9164.51	U	(1)	4.89	6.24	4-3	
9318.13	F	3	4.93	6.26	3-2	
9388.28	F	3n	4.97	6.28	2-1	
•9452.45	F	2	4.99	6.29	1-0	
9214.45	F	6	4.89	6.23	4-4	$x^5D^o-e^7P$
9394.71	F	3n	4.93	6.25	3-3	(1264)
9404.80	P	⊙?	4.97	6.28	2-2	
9100.50	F	5n	4.89	6.25	4-3	
9024.47	F	15	4.89	6.26	4-5	$x^5D^o-e^5G$
•9080.48	F	3n	4.93	6.29	3-4	(1265)
9116.89	P	⊙	4.99	6.34	1-2	
8805.21	P	⊙	4.89	6.29	4-4	
8887.10	P	⊙	4.93	6.32	3-3	
8616.27	P	⊙	4.89	6.32	4-5	$x^5D^o-e^7G$
8796.42	F	2	4.93	6.34	3-4	(1266)
8902.94	P	⊙	4.97	6.35	2-3	
8978.04	P	⊙	4.99	6.36	1-2	
8538.02	P	⊙	4.89	6.34	4-4	
8700.34	P	⊙	4.93	6.35	3-3	
8956.26	P	⊙	4.99	6.37	1-1	
8447.41	P	⊙	4.89	6.35	4-3	
8819.42	P	⊙	4.97	6.37	2-1	
8710.29	F	20n	4.89	6.31	4-5	$x^5D^o-f^5F$
8699.43	O	(4n)	4.93	6.35	3-4	(1267)
8790.62	F	10n	4.97	6.37	2-3	
8846.82	F	5	4.99	6.38	1-2	
8876.13	F	2	5.00	6.39	0-1	
8446.56	P		4.89	6.35	4-4	
8592.97	O	(2n)	4.93	6.37	3-3	
•8713.19	F	10	4.97	6.38	2-2	
8808.17	P	4n	4.99	6.39	1-1	
8519.05	P	⊙	4.93	6.38	3-2	
•9157.07	P	(2)	4.97	6.31	2-2	$x^5D^o-e^5S$ (1268)
8567.78	P	⊙	4.89	6.33	4-3	$x^5D^o-e^3D$
8493.79	P	⊙	4.93	6.39	3-2	(1269)
8466.10	P	⊙	4.97	6.42	2-1	
8828.08	P	⊙	4.93	6.33	3-3	
8686.77	P	⊙	4.97	6.39	2-2	
8592.10	P	⊙	4.99	6.42	1-1	
9036.74	P	(1)	4.97	6.33	2-3	
8819.48	P	⊙	4.99	6.39	1-2	
8656.67	P	⊙	5.00	6.42	0-1	
8526.685	E	8	4.89	6.34	4-4	$x^5D^o-g^5D$
8471.75	O	2	4.93	6.39	3-3	(1270)
8459.01	P	⊙	4.97	6.43	2-2	
8465.23	P	⊙	4.99	6.45	1-1	
8275.91	O	4n	4.93	6.43	3-2	
8342.95	R	(-)	4.97	6.45	2-1	
8434.51	P	⊙	4.99	6.45	1-0	
8784.44	F	5	4.93	6.34	3-4	
8663.73	P	⊙	4.97	6.39	2-3	
8584.82	P	⊙	4.99	6.43	1-2	
8527.88	P	⊙	5.00	6.45	0-1	
8369.87	P	⊙	4.89	6.37	4-3	$x^5D^o-e^7S$
8816.86	P	⊙	4.97	6.37	2-3	(1271)
8186.80	O	10nd?	4.89	6.40	4-3	$x^5D^o-e^5P$
8263.86	P	⊙	4.93	6.43	3-2	(1272)
8480.63	P	⊙	4.97	6.42	2-1	
8424.14	O	2n	4.93	6.40	3-3	
8446.42	P		4.97	6.43	2-2	
8607.08	P	⊙	4.99	6.42	1-1	
8613.93	P	⊙	4.97	6.40	2-3	
8571.84	P	⊙	4.99	6.43	1-2	
8671.86	P	⊙	5.00	6.42	0-1	
7440.98	V	2n	4.89	6.55	4-5	$x^5D^o-g^5F$
7447.43	V	1	4.93	6.59	3-4	(1273)
7351.160	V	2n	4.97	6.65	2-3	
7216.68	P	⊙	4.99	6.70	1-2	
7194.92	O	1	5.00	6.71	0-1	
7261.29	P	⊙	4.89	6.59	4-4	
7212.47	V	1n	4.93	6.65	3-3	
7127.58	P	⊙	4.97	6.70	2-2	
6997.13	P	⊙	4.93	6.70	3-2	
7062.80	P	⊙	4.97	6.71	2-1	
7389.34	P		4.89	6.56	4-4	$x^5D^o-h^5D$
7363.96	O	1n	4.93	6.61	3-3	(1274)
7278.48	P	⊙	4.97	6.66	2-2	
7282.39	V	1n	4.99	6.68	1-1	
7181.93	V	1n	4.89	6.61	4-3	
7142.522	V	4n	4.93	6.66	3-2	
7191.66	O	(1)	4.97	6.68	2-1	
7582.15	P	⊙	4.93	6.56	3-4	
7508.53	P	⊙	4.97	6.61	2-3	

Fe I continued

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
7386.394	L	8n	4.89	6.56	4-3	$x^5D^o-f^5P$
7351.56	V	4	4.93	6.61	3-2	(1275)
7300.47	O	1n	4.97	6.66	2-1	
7495.67	P	⊙	4.97	6.61	2-2	
§7320.694§	L	5n	4.89	6.58	4-5	$x^5D^o-f^5G$
7244.86	V	2n	4.93	6.64	3-4	(1276)
7176.886	V	2n	4.97	6.69	2-3	
7155.64	V	3n	4.99	6.71	1-2	
7068.60	P	⊙	4.89	6.64	4-4	
7044.60	O	(1)	4.93	6.69	3-3	
7068.02	P	⊙	4.97	6.71	2-2	
7083.396	V	1n	4.89	6.63	4-5	$x^5D^o-e^3G$
7091.91	P	(1)	4.93	6.67	3-4	(1277)
7066.15	P	⊙	4.97	6.71	2-3	
7079.32	P	⊙	4.89	6.64	4-3	$x^5D^o-f^3D$
7091.83	O	(1)	4.93	6.67	3-2	(1278)
7031.42	P	⊙	4.97	6.72	2-1	
7256.13	P	(1)	4.93	6.64	3-3	
7225.82	P	⊙	4.97	6.67	2-2	
7118.12	P	⊙	4.99	6.72	1-1	
7396.50	P	⊙	4.97	6.64	2-3	
7317.40	P	⊙	4.99	6.67	1-2	
7162.37	P	⊙	5.00	6.72	0-1	
6639.35	P	⊙	4.89	6.75	4-4	$x^5D^o-f^3F$
6794.60	P	⊙	4.93	6.75	3-4	(1279)
6712.44	P	⊙	4.97	6.81	2-3	
m6705.13	P	Fe	4.93	6.77	3-2	$x^5D^o-e^3P$
6601.13	P	⊙	4.97	6.84	2-1	(1280)
6524.76	P	⊙	4.99	6.88	1-0	
6824.82	P	⊙	4.97	6.77	2-2	
6677.49	P	⊙	4.99	6.84	1-1	
5531.949	U	(1)	4.89	7.12	4-4	$x^5D^o-i^5D$
5602.54	P	⊙	4.93	7.14	3-3	(1281)
5634.53	P	⊙	4.97	7.16	2-2	
5496.57	P	⊙	4.89	7.14	4-3	
5552.70	P	⊙	4.93	7.16	3-2	
5685.86	P	⊙	4.97	7.14	2-3	
5690.07	P	⊙	4.99	7.16	1-2	
5479.95	P	⊙	4.93	7.19	3-2	x^5D^o-4
5559.64	P	⊙	4.97	7.19	2-2	(1282)
5613.70	P	⊙	4.99	7.19	1-2	
9602.07	F	2	4.99	6.28	4-5	$y^7P^o-e^7F$
8863.64	F	1p?	4.94	6.34	2-2	(1283)
9382.93	P	3n	4.96	6.28	3-3	$y^7P^o-f^7D$ (1284)
9944.13	F	3n	4.99	6.23	4-4	$y^7P^o-e^7P$
9608.89	P	⊙?	4.96	6.25	3-3	(1285)
9248.80	P	⊙	4.94	6.28	2-2	
9811.36	F	2	4.99	6.25	4-3	
9383.40	P	⊙	4.96	6.28	3-2	
8967.53	P	⊙	4.99	6.37	4-3	$y^7P^o-e^7S$
8798.05	P	⊙	4.96	6.37	3-3	(1286)
8679.61	P	⊙	4.94	6.37	2-3	
7909.60	P	⊙?	4.99	6.55	4-5	$y^7P^o-g^5F$ (1287)
6813.55	P	⊙?	4.96	6.77	3-2	$y^7P^o-e^3P$ (1288)
6245.84	V	(1)	4.99	6.97	4-5	y^7P^o-i (1289)
5678.04	P	⊙?	4.96	7.14	3-3	$y^7P^o-i^5D$
5748.15	P	⊙?	4.99	7.14	4-3	(1290)
5720.79	P	(1n)	4.99	7.15	4-5	$y^7P^o-h^7D$ (1291)
9913.19	P	⊙	4.97	6.21	5-6	$x^5F^o-e^7F$
9763.913	E	15	5.01	6.28	4-5	(1292)
9658.94	F	3	5.04	6.32	3-4	
•9868.09	F	3	5.06	6.31	2-3	
9800.79	P	⊙	5.08	6.34	1-2	
•9452.45	F	2	4.97	6.28	5-5	
9433.29	P	⊙	5.01	6.32	4-4	
•9699.70	F	6n	5.04	6.31	3-3	
9693.69	F	1	5.06	6.34	2-2	
9920.46	P	⊙	5.08	6.32	1-1	
9531.22	P	⊙	5.04	6.34	3-2	
9878.18	P	⊙	4.97	6.22	5-5	$x^5F^o-f^7D$
9977.52	F	1	5.04	6.28	3-3	(1293)
10016.67	P	⊙	5.06	6.30	2-2	
10080.44	P	⊙	5.08	6.30	1-1	
9967.32	P	⊙	5.06	6.30	2-1	
9834.04	F	3n	4.97	6.22	5-4	$x^5F^o-f^5D$
10057.64	F	3	5.01	6.24	4-3	(1294)
10142.82	F	2	5.04	6.26	3-2	
10137.06	P	⊙	5.06	6.28	2-1	
10149.09	P	⊙	5.08	6.29	1-0	
9783.96	F	3	4.97	6.23	5-4	$x^5F^o-e^7P$
9980.55	F	2n	5.01	6.25	4-3	(1295)
10117.81	P	⊙	5.01	6.23	4-4	
9738.624	E	200	4.97	6.24	5-6	$x^5F^o-e^5G$
9889.082	E	40	5.01	6.26	4-5	(1296)
9861.793	E	30	5.04	6.29	3-4	
9800.335	E	20	5.06	6.32	2-3	
9763.450	E	15	5.08	6.34	1-2	
9569.960	E	40n	4.97	6.26	5-5	
9626.562	E	30n	5.01	6.29	4-4	
9634.22	F	5	5.04	6.32	3-3	
9657.30	F	4	5.06	6.34	2-2	
9409.55	P	⊙	5.01	6.32	4-3	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
9333.94	F	2	4.97	6.29	5-6	$x^5F^o-e^7G$
9401.09	F	10n	5.01	6.32	4-5	(1297)
9527.73	P	1	5.04	6.34	3-4	
9573.65	P	⊙	5.06	6.35	2-3	
9112.25	P	⊙	4.97	6.32	5-5	
9307.94	F	2	5.01	6.34	4-4	
9415.04	P		5.04	6.35	3-3	
9024.78	P	⊙	4.97	6.34	5-4	
9317.54	F	5n	4.97	6.31	5-5	$x^5F^o-f^5F$
9199.52	F	2n	5.01	6.35	4-4	(1298)
9289.39	P	⊙	5.04	6.37	3-3	
9410.15	P	1n	5.08	6.39	1-1	
9922.66	P	⊙	4.97	6.35	5-4	
9080.48	F	3n	5.01	6.37	4-3	
9203.10	P	⊙	5.04	6.38	3-2	
9513.24	E	10n	5.01	6.31	4-5	
9414.14	F	20n	5.04	6.35	3-4	
9443.98	F	10n	5.06	6.37	2-3	
9454.24	F	4n	5.08	8.38	1-2	
9699.70	F	6n	5.04	6.31	3-2	$x^5F^o-e^5S$
9868.09	F	3	5.06	6.31	2-2	(1299)
9343.40	F	3	5.01	6.33	4-3	$x^5F^o-e^3D$
9173.63	P	4nd	5.04	6.39	3-2	(1300)
9070.42	F	2	5.06	6.42	2-1	
9324.07	O	(1)	5.06	8.39	2-2	
9423.07	P	⊙	5.08	6.39	1-2	
9012.098	E	30	4.97	6.34	5-4	$x^5F^o-g^5D$
8945.204	E	20	5.01	6.39	4-3	(1301)
8919.95	F	10	5.04	6.43	3-2	
8929.04	F	5	5.06	6.45	2-1	
8984.87	F	3	5.08	6.45	1-0	
9294.66	F	2	5.01	8.34	4-4	
9147.800	E	5n	5.04	6.39	3-3	
9062.24	F	2	5.06	6.43	2-2	
9019.84	F	2	5.08	6.45	1-1	
9155.67	P	1	5.08	6.43	1-2	
8892.13	P	⊙	5.01	6.40	4-3	$x^5F^o-e^5P$
8905.99	P	⊙	5.04	6.43	3-2	(1302)
7807.97	P	⊙	4.97	6.55	5-5	$x^5F^o-g^5F$
7810.81	P	⊙	5.01	6.59	4-4	(1303)
7551.10	P	⊙	5.06	6.70	2-2	
7552.79	P	⊙	5.01	6.65	4-3	
7452.08	P	⊙	5.04	6.70	3-2	
7964.93	P	⊙	5.04	6.59	3-4	
7802.49	P	⊙	5.06	6.65	2-3	
7751.18	O	5n	4.97	6.56	5-4	$x^5F^o-h^5D$
7719.05	P	⊙	5.01	6.61	4-3	(1304)
7817.19	P	⊙	5.04	6.66	3-2	
7959.21	O	(1)	5.01	6.56	4-4	
7720.88	P	⊙	5.06	6.66	2-2	
7689.10	P	⊙	5.08	6.68	1-1	
7980.04	P	⊙?	5.06	6.61	2-3	
7955.81	O	(1)	5.01	6.56	4-3	$x^5F^o-f^5P$
7855.41	P	4n	5.04	6.61	3-2	(1305)
7745.48	P	⊙	5.06	6.66	2-1	
7965.52	P	⊙	5.06	6.61	2-2	
7813.62	P	⊙	5.08	6.66	1-1	
7742.71	O	4n	4.97	6.56	5-6	$x^5F^o-f^5G$
7879.75	P	1	5.01	6.58	4-5	(1308)
7733.68	P	⊙	5.04	6.64	3-4	
7547.89	P	⊙	5.08	6.71	1-2	
7588.30	P	⊙	5.01	6.64	4-4	
7505.98	P	⊙	5.04	6.69	3-3	
7484.28	P	⊙	5.06	6.71	2-2	
7398.98	P	⊙	4.97	6.64	5-4	
7528.15	P	⊙	5.01	6.65	4-5	$x^5F^o-e^5H$
7463.38	P	⊙	5.04	6.70	3-4	(1307)
7420.20	P	⊙	5.06	6.73	2-3	
7341.78	P	⊙	4.97	6.65	5-5	
7194.02	P	⊙	5.01	6.73	4-3	
7415.19	P	⊙	4.97	6.63	5-5	$x^5F^o-e^3G$
7384.96	P	⊙	5.04	6.71	3-3	(1308)
7605.32	O	2n	5.01	6.63	4-5	
7559.68	O	1n	5.04	6.67	3-4	
7482.20	P	⊙	5.06	6.71	2-3	
7443.26	P	⊙	5.06	6.72	2-1	$x^5F^o-f^3D$
7746.56	P	⊙	5.04	6.64	3-3	(1309)
7681.46	P	⊙	5.06	6.67	2-2	
7359.95	P	⊙	4.97	6.65	5-6	$x^5F^o-e^3H$
7312.05	P	⊙	5.01	6.70	4-5	(1310)
7160.85	P	⊙	5.01	6.73	4-4	
*7222.88	V	(1)	5.04	6.75	3-4	$x^5F^o-f^3F$
*7086.76	V	2	5.06	6.81	2-3	(1311)
6027.76	P	⊙	4.97	7.02	5-4	x^5F^o-3
6152.82	P	⊙?	5.01	7.02	4-4	(1312)

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5732.29	P	⊙	4.97	7.12	5-4	$x^5F^o-i^5D$
5805.76	P	(1)	5.01	7.14	4-3	(1313)
5835.41	P	⊙	5.04	7.16	3-2	
5845.27	P	⊙	5.01	7.12	4-4	
5890.48	P	⊙	5.04	7.14	3-3	
5952.19	P	⊙	5.06	7.14	2-3	
5633.970	V	(2)	4.97	7.16	5-6	$x^5F^o-g^5G$
*5655.506	V	4	5.01	7.19	4-5	(1314)
5655.179	V	(2)	5.04	7.22	3-4	
5650.71	V	(1)	5.06	7.25	2-3	
5650.01	V	(1)	5.08	7.26	1-2	
5549.66	P	⊙	4.97	7.19	5-5	
5577.03	P	⊙	5.01	7.22	4-4	
5595.06	P	⊙	5.04	7.25	3-3	
5614.29	P	⊙	5.06	7.26	2-2	
5474.09	P	⊙	4.97	7.22	5-4	
5518.57	P	⊙	5.01	7.25	4-3	
11479.87	P	⊙?	5.00	6.08	3-2	$a^1F-v^3D^o$ (1315)
10875.00	P	⊙	5.00	6.14	3-4	$a^1F-y^3H^o$ (1316)
9917.93	F	2	5.00	6.25	3-4	$a^1F-x^1G^o$ (1317)
8852.30	P	⊙?	5.00	6.40	3-2	$a^1F-u^5F^o$ (1318)
9482.82	P	⊙?	5.00	6.31	3-4	$a^1F-t^5D^o$ (1319)
8959.88	P	⊙?	5.00	6.38	3-3	$a^1F-u^5P^o$ (1320)
8559.98	W	(1)	5.00	6.45	3-3	$a^1F-t^3D^o$ (1321)
8171.30	P	⊙	5.00	6.51	3-4	$a^1F-w^3H^o$ (1322)
7846.47	P	⊙?	5.00	6.58	3-2	$a^1F-s^3D^o$ (1323)
7107.30	P	⊙	5.00	6.74	3-3	$a^1F-t^3G^o$ (1324)
6552.77	W	(2)	5.00	6.89	3-3	$a^1F-w^1F^o$ (1325)
6124.08	P	⊙	5.00	7.02	3-2	$a^1F-u^3F^o$ (1326)
6089.566	L	(1)	5.00	7.03	3-4	$a^1F-v^1G^o$ (1327)
5041.32	P	⊙	5.00	7.45	3-3	$a^1F-r^3G^o$ (1328)
9008.37	F	2	5.05	6.42	3-3	$X-u^3D^o$ (1329)
8814.50	P	2	5.05	6.45	3-3	$X-t^3D^o$
8689.83	P	⊙	5.08	6.50	2-2	(1330)
8464.02	P	⊙	5.05	6.50	3-2	
8300.01	P	⊙	5.05	6.53	3-2	$X-v^3P^o$ (1331)
8274.28	O	6	5.05	6.54	3-3	$X-s^3D^o$
8264.27	M	3	5.08	6.58	2-2	(1332)
6700.90	P	⊙	5.05	6.89	3-3	$X-w^1F^o$
6841.65	P	⊙	5.08	6.89	2-3	(1333)
6406.42	W	(1)	5.08	7.01	2-3	$X-u^3F^o$ (1334)
6217.288	V	(1)	5.05	7.03	3-4	$X-v^1G^o$ (1335)
10012.15	P	⊙	5.05	6.28	2-1	$z^5S^o-f^5D$ (1336)
9683.57	F	1	5.05	6.32	2-3	$z^5S^o-e^5G$ (1337)
9335.27	P	⊙	5.05	6.37	2-3	$z^5S^o-f^5F$
9248.13	P	⊙	5.05	6.38	2-2	(1338)
*7148.69	R	(-)	5.05	6.77	2-2	$z^5S^o-e^3P$ (1339)
5853.48	P	⊙?	5.05	7.16	2-2	$z^5S^o-i^5D$ (1340)
10890.13	P	⊙?	5.29	6.42	2-1	$x^5P^o-e^3D$
11542.96	P	⊙?	5.32	6.39	1-2	(1341)
9233.15	P	(1)	5.30	6.63	5-5	$y^5G^o-e^3G$
9052.56	P	(1)	5.31	6.67	4-4	(1342)
6671.36	W	(2)	5.30	7.15	5-5	$y^5G^o-h^7D$ (1343)
6450.99	V	(1)	5.31	7.22	4-4	$y^5G^o-g^5G$
6402.43	P	(1)	5.33	7.26	2-2?	(1344)
10555.63	P	⊙	5.42	6.59	3-4	$w^5D^o-g^5F$
10362.73	P	⊙	5.45	6.65	2-3	(1345)
10070.58	P	⊙	5.49	6.71	0-1	
10022.34	P	⊙	5.48	6.71	1-1	
9676.42	F	1	5.37	6.65	4-3	

Fe I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
10353.85	P	(2n)	5.37	6.56	4-4	$w^5D^o-h^5D$
10388.73	P	⊙	5.42	6.61	3-3	(1346)
10283.87	P	⊙	5.48	6.68	1-1	
9951.15	P	⊙	5.37	6.61	4-3	
9953.45	P	⊙	5.42	6.66	3-2	
10348.16	F	4n	5.37	6.56	4-3	$w^5D^o-f^5P$
10364.13	P	⊙	5.42	6.61	3-2	(1347)
10153.30	P		5.42	6.64	3-4	$w^5D^o-f^5G$
10019.77	P	⊙	5.45	6.69	2-3	(1348)
10032.84	P	⊙	5.48	6.71	1-2	
9764.40	P	⊙	5.42	6.69	3-3	
6943.67	P	⊙?	5.37	7.15	4-5	$w^5D^o-h^7D$ (1349)
10925.80	D	1	5.46	6.59	5-4	$w^5F^o-g^5F$ (1350)
7430.73	O	(1)	5.46	7.12	5-4	$w^5F^o-i^5D$ (1351)
7526.72	P	⊙	5.48	7.12	4-4	$v^5D^o-i^5D$
7537.97	P	⊙	5.50	7.14	3-3	(1352)
7461.28	P	⊙	5.48	7.14	4-3	
7448.00	P	⊙	5.50	7.16	3-2	

Additions to Multiplets of Fe I

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4232.724	V	1	0.11	2.99	1-2	$a^5D-z^7P^o$ (3)
m3199.50	P	Fe	0.11	3.97	1-2	$a^5D-z^3F^o$ (7)
3418.507	G	10	2.21	5.82	1-0	$a^5P-u^5D^o$ (81)

Strongest Unclassified Lines of Fe I

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
9666.59	F	2	V			
9637.55	F	2	V			
9529.31	F	2n	V			
9430.08	E	3	IV•			
8145.47	O	4	V			
8024.50	O	3n	V			
7994.473	E	20	IV•			
7808.04	O	6n	V			
7573.53	O	2n	V			
7546.177	L	4	IV•			
*7376.434§	R	3n	V			
7254.649	V	2	IV•			
6975.46	V	3n	V			
6902.80	V	3n	V			
6881.46	M	1	V			
6838.86	V	3n	V			
6793.62	M	1	V			
6755.609	V	3	IV•			
6726.78	D	(3)				
6609.56	V	1	V			
6528.53	V	2	V			
6501.681	V	4	IV•			
6042.092	J	2	V			
5036.294	R	6				
4552.544	J	(3)				
4237.162	J	2	V			
4100.17	W	(3)				
3851.58	W	(4)				
3739.527	J	3	IV			
3681.774	V	1	IV			
3680.801	V	1	IV			
3656.227	V	3n	IV			
3634.698	G	4n	IV			
3617.317	J	2	IV			
3616.572	J	3n	IV			
3614.550	G	2n	IV			
3587.752	J	3	IV			
3506.40	W	(3)				
3438.306	V	(3w)				
3262.284	V	4	IV			
3179.538	V	3	IV			
3139.908	V	4n	V			
3136.17	W	(3)				
3126.175	G	8n	IV			
3102.71	W	(4)				
2991.632	G	5n	IV			

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Fe II	I P 16.16		Anal A	List A	July 1941	
3277.347	A	9	0.98	4.75	3½-4½	$a^4D-z^6D^o$ (1)
3302.861	A	4	1.04	4.77	2½-3½	
3313.707	C	(1)	1.07	4.80	1½-2½	
3313.996	A	1	1.09	4.82	½-1½	
3255.884	A	8	0.98	4.77	3½-3½	
3281.293	A	7	1.04	4.80	2½-2½	
3295.814	A	6	1.07	4.82	1½-1½	
3303.466	A	4	1.09	4.83	½-½	
3234.923	A	0	0.98	4.80	3½-2½	
3264.76	P		1.04	4.82	2½-1½	
3285.425	C	(3)	1.07	4.83	1½- ½	
3953.774	A	11	1.04	5.21	2½-3½	$a^4D-z^6F^o$ † (2)
2970.510	A	10	1.07	5.23	1½-2½	
*2979.349	A	8	1.09	5.23	½-1½	
2975.938	A	5	1.09	5.24	½- ½	
2961.272	A	5	1.07	5.24	1½- ½	
3969.40	P		1.66	4.77	2½-3½	$a^4P-z^6D^o$ (3)
3969.38	P		1.69	4.80	1½-2½	
3981.61	P		1.72	4.82	½-1½	
3938.289	A	2	1.66	4.80	2½-2½	
3945.21	P		1.69	4.82	1½-1½	
3966.43	P		1.72	4.83	½- ½	
3914.480	A	2	1.66	4.82	2½-1½	
3930.31	P		1.69	4.83	1½- ½	
3475.74	P		1.66	5.21	2½-3½	$a^4P-z^6F^o$ (4)
3487.990	A	3	1.69	5.23	1½-2½	
3508.213	A	1	1.72	5.23	½-1½	
3463.974	A	1	1.66	5.23	2½-2½	
3479.914	A	2	1.69	5.23	1½-1½	
3503.474	A	2	1.72	5.24	½- ½	
3456.00	P		1.66	5.23	2½-1½	
3475.25	P		1.69	5.24	1½- ½	
3425.582	A	3	1.66	5.27	2½-3½	$a^4P-z^6P^o$ (5)
3381.36	P		1.69	5.34	1½-2½	
3364.22	P		1.72	5.39	½-1½	
3358.78	P		1.66	5.34	2½-2½	
3338.19	P		1.69	5.39	1½-1½	
3316.18	P		1.66	5.39	2½-1½	
*3227.732§	A	13	1.66	5.49	2½-3½	$a^4P-z^4D^o$ (6)
3213.311	A	13	1.69	5.53	1½-2½	
3210.449	A	10	1.72	5.56	½-1½	
3192.917	A	9	1.66	5.53	2½-2½	
3186.740	A	11	1.69	5.56	1½-1½	
3193.809	A	11	1.72	5.58	½- ½	
3166.670	A	4	1.66	5.56	2½-1½	
3170.337	A	6	1.69	5.58	1½- ½	
3196.070	A	10	1.66	5.52	2½-3½	$a^4P-z^4F^o$ (7)
3183.115	A	8	1.69	5.57	1½-2½	
3185.315	A	5	1.72	5.59	½-1½	
3163.091	A	5	1.66	5.57	2½-2½	
*3161.945§	C	(5)	1.69	5.59	1½-1½	
3142.220	A	0	1.66	5.59	2½-1½	
2984.831	A	15	1.66	5.80	2½-2½	$a^4P-z^4P^o$ † (8)
2965.036	A	10	1.69	5.85	1½-1½	
2964.629	A	9	1.72	5.88	½- ½	
3002.650	A	13	1.69	5.80	1½-2½	
2985.545	A	13	1.72	5.85	½-1½	
4420.75	P		1.98	4.75	4½-4½	$a^2G-z^6D^o$ (9)
4484.93	P		2.02	4.77	3½-3½	
4381.79	P		1.96	4.77	4½-3½	
4445.26	P		2.02	4.80	3½-2½	
4525.75	P		2.02	4.75	3½-4½	
3521.64	P		1.96	5.46	4½-4½	$a^2G-z^4F^o$ (10)
3522.05	P		2.02	5.52	3½-3½	
3458.13	P		1.96	5.52	4½-3½	
3482.05	P		2.02	5.57	3½-2½	
3587.95	P		2.02	5.46	3½-4½	
4818.26	P		2.27	4.83	1½- ½	$a^2P-z^6D^o$ (11)
4169.98	P		2.27	5.23	1½-2½	$a^2P-z^6F^o$ (12)
4251.49	P		2.33	5.23	½-1½	
4158.45	P		2.27	5.23	1½-1½	
4244.53	P		2.33	5.24	½- ½	
4151.79	P		2.27	5.24	1½- ½	
4018.49	P		2.27	5.34	1½-2½	$a^2P-z^6P^o$ (13)
4041.84	P		2.33	5.39	½-1½	
3957.66	P		2.27	5.39	1½-1½	
3783.347	A	4	2.27	5.53	1½-2½	$a^2P-z^4D^o$ (14)
3821.92	P		2.33	5.58	½-1½	
3746.56	P		2.27	5.56	1½-1½	
3798.36	P		2.33	5.58	½- ½	
3723.92	P		2.27	5.58	1½- ½	
3741.56	P		2.27	5.57	1½-2½	$a^2P-z^4F^o$ (15)
3786.37	P		2.33	5.59	½-1½	
3712.39	P		2.27	5.59	1½-1½	
3494.672	A	5	2.27	5.80	1½-2½	$a^2P-z^4P^o$ (16)
3507.387	A	3	2.33	5.85	½-1½	
3443.83	P		2.27	5.85	1½-1½	
3478.55	P		2.33	5.88	½- ½	
3416.021	A	5	2.27	5.88	1½- ½	
4622.40	P		2.51	5.18	5½-5½	$a^2H-z^8F^o$ (17)
4691.55	P		2.57	5.20	4½-4½	
4591.26	P		2.51	5.20	5½-4½	
4664.79	P		2.57	5.21	4½-3½	
4724.07	P		2.57	5.18	4½-5½	
5696.11	P		2.83	4.80	1½-2½	$a^2D-z^6D^o$ (18)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Fe II continued						
4603.75	P		2.53	5.21	2½-3½	$a^2D-z^6F^o$ (19)
4582.12	P		2.53	5.23	2½-2½	
4515.19	P		2.53	5.27	2½-3½	$a^2D-z^6P^o$ (20)
4558.58	P		2.63	5.34	1½-2½	
4399.86	P		2.53	5.34	2½-2½	
4480.46	P		2.63	5.39	1½-1½	
4327.04	P		2.53	5.39	2½-1½	
4177.70	P		2.53	5.49	2½-3½	$a^2D-z^4D^o$ (21)
4258.35	P		2.63	5.53	1½-2½	
4119.53	P		2.53	5.53	2½-2½	
4211.80	P		2.63	5.56	1½-1½	
4075.95	P		2.53	5.56	2½-1½	
4183.20	P		2.63	5.58	1½- ½	
4124.793	A	1	2.53	5.52	2½-3½	$a^2D-z^4F^o$ (22)
4205.48	P		2.63	5.57	1½-2½	
4070.03	P		2.53	5.57	2½-2½	
4168.66	P		2.63	5.59	1½-1½	
4035.54	P		2.53	5.59	2½-1½	
3779.58	P		2.53	5.80	2½-2½	$a^2D-z^4P^o$ (23)
3833.02	P		2.63	5.85	1½-1½	
3730.17	P		2.53	5.85	2½-1½	
3798.60	P		2.63	5.88	1½- ½	
3896.11	P		2.63	5.80	1½-2½	
5607.12	P		2.57	4.77	2½-3½	$b^4P-z^8D^o$ (24)
5864.54	P		2.69	4.80	1½-2½	
6021.18	P		2.77	4.82	½-1½	
5545.26	P		2.57	4.80	2½-2½	
5811.93	P		2.69	4.82	1½-1½	
5986.54	P		2.77	4.83	½- ½	
5498.19	P		2.57	4.82	2½-1½	
5779.65	P		2.69	4.83	1½- ½	
4670.170	A	0	2.57	5.21	2½-3½	$b^4P-z^6F^o$ (25)
4871.27	P		2.69	5.23	1½-2½	
5000.73	P		2.77	5.23	½-1½	
4648.933	A	?0	2.57	5.83	2½-2½	
4855.54	P		2.69	5.23	1½-1½	
4991.11	P		2.77	5.24	½- ½	
4634.60	P		2.57	5.23	2½-1½	
4846.47	P		2.69	5.24	1½- ½	
4580.055	A	1	2.57	5.27	2½-3½	$b^4P-z^6P^o$ (26)
4665.60	P		2.69	5.34	1½-2½	
4713.18	P		2.77	5.39	½-1½	
4461.43	P		2.57	5.34	2½-2½	
4583.99	P		2.69	5.39	1½-1½	
4386.57	P		2.57	5.39	2½-1½	
4233.167	A	11	2.57	5.49	2½-3½	$b^4P-z^4D^o$ (27)
4351.764	A	9	2.69	5.53	1½-2½	
4416.817	A	7	2.77	5.56	½-1½	
4173.450	A	8	2.57	5.53	2½-2½	
4303.166	A	8	2.69	5.58	1½-1½	
4385.381	A	7	2.77	5.58	½- ½	
4128.735	A	3	2.57	5.56	2½-1½	
4273.317	A	3	2.69	5.58	1½- ½	
4178.855	A	8	2.57	5.52	2½-3½	$b^4P-z^4F^o$ (28)
4396.587	A	6	2.69	5.57	1½-2½	
4369.404	A	2	2.77	5.59	½-1½	
4122.638	A	4	2.57	5.57	2½-2½	
4258.155	A	3	2.69	5.59	1½-1½	
4087.27	P		2.57	5.59	2½-1½	
3824.913	A	4	2.57	5.80	2½-2½	$b^4P-z^4P^o$ (29)
3908.54	P		2.69	5.85	1½-1½	
3964.57	P		2.77	5.88	½- ½	
m3784.09	P	Fe	2.57	5.85	2½-1½	
3872.76	P		2.69	5.88	1½- ½	
3974.160	A	3	2.69	5.80	1½-2½	
4002.073	A	2	2.77	5.85	½-1½	
4825.71	P		2.82	5.18	6½-5½	$a^4H-z^8F^o$ (30)
4833.21	P		2.85	5.20	5½-4½	
4840.00	P		2.66	5.21	4½-3½	
4847.81	P		2.68	5.23	3½-2½	
4887.73	P		2.65	5.18	5½-5½	
4868.82	P		2.66	5.20	4½-4½	
4870.71	P		2.68	5.21	3½-3½	
4903.85	P		2.86	5.18	4½-5½	
4899.90	P		2.68	5.20	3½-4½	
4743.28	P		2.66	5.27	4½-3½	$a^4H-z^6P^o$ (31)
4844.09	P		2.68	5.34	3½-2½	
4772.77	P		2.68	5.27	3½-3½	
4384.33	P		2.85	5.46	5½-4½	$a^4H-z^4F^o$ (32)
*4314.289§	A	4	2.66	5.52	4½-3½	
4278.128	C	(1)	2.88	5.57	3½-2½	
4413.600	A	0	2.66	5.46	4½-4½	
4338.70	P		2.68	5.52	3½-3½	
4439.13	P		2.68	5.46	3½-4½	
4372.22	P		2.66	5.49	4½-3½	$a^4H-z^4D^o$ (33)
4332.88	P		2.68	5.53	3½-2½	
4397.27	P		2.68	5.49	3½-3½	
6239.36	P		2.79	4.77	4½-3½	$b^4F-z^6D^o$ † (34)
6229.34	P		2.82	4.80	3½-3½	
6219.54	P		2.83	4.82	2½-1½	
6217.95	P		2.84	4.83	1½- ½	
5171.82	P		2.79	5.18	4½-5½	$b^4F-z^6F^o$ (35)
5178.71	P		2.82	5.20	3½-4½	
5180.53	P		2.83	5.21	2½-3½	
5178.95	P		2.84	5.23	1½-2½	
5132.87	P		2.79	5.20	4½-4½	
5146.12	P		2.82	5.21	3½-3½	
5154.40	P		2.83	5.23	2½-2½	
5181.18	P		2.84	5.23	1½-1½	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Fe II continued						
5100.66	P		2.79	5.21	4½-3½	$b^4F-z^6F^o$ cont
5120.34	P		2.82	5.23	3½-2½	
5136.788	A	tr	2.83	5.23	2½-1½	
5150.93	P		2.84	5.24	1½- ½	
4993.355	A	1	2.79	5.27	4½-3½	$b^4F-z^6P^o$ (36)
4893.780	A	0n	2.82	5.34	3½-2½	
*5036.92 §	B	2	2.82	5.27	3½-3½	
4629.336	A	7	2.79	5.46	4½-4½	$b^4F-z^4P^o$ (37)
4555.890	A	8	2.82	5.52	3½-3½	
4515.337	A	7	2.83	5.57	2½-2½	
4491.401	A	5	2.84	5.59	1½-1½	
4520.225	A	7	2.79	5.52	4½-3½	
4489.185	A	4	2.82	5.57	3½-2½	
4472.921	A	2	2.83	5.59	2½-1½	
4866.750	A	2	2.82	5.46	3½-4½	
4582.835	A	3	2.83	5.52	2½-3½	
4534.166	A	2	2.84	5.57	1½-2½	
4563.829	A	11	2.79	5.49	4½-3½	$b^4F-z^4D^o$ (38)
4549.467	A	10	2.82	5.53	3½-2½	
4522.634	A	9	2.83	5.56	2½-1½	
4508.263	A	8	2.84	5.58	1½- ½	
4620.513	A	3	2.82	5.49	3½-3½	
4576.331	A	4	2.83	5.53	2½-2½	
4541.523	A	4	2.84	5.56	1½-1½	
4648.23	P		2.83	5.49	2½-3½	
4595.68	P		2.84	5.53	1½-2½	
4138.40	P		2.82	5.80	3½-2½	$b^4F-z^4P^o$ † (39)
4086.75	P		2.83	5.85	2½-1½	
4064.75	P		2.84	5.86	1½- ½	
4160.62	P		2.83	5.80	2½-2½	
4104.18	P		2.84	5.85	1½-1½	
6516.053	B	20	2.68	4.77	2½-3½	$a^6S-z^6D^o$ (40)
6432.654	B	6	2.88	4.80	2½-2½	
6369.45	B	4	2.88	4.82	2½-1½	
5284.092	A	3	2.88	5.21	2½-3½	$a^6S-z^6F^o$ (41)
5256.89	P	1	2.88	5.23	2½-2½	
5238.58	P		2.88	5.23	2½-1½	
5169.030	A	12	2.68	5.27	2½-3½	$a^6S-z^6P^o$ (42)
5018.434	A	12	2.88	5.34	2½-2½	
4923.921	A	12	2.68	5.39	2½-1½	
*4731.439§	A	3	2.88	5.49	2½-3½	$a^6S-z^4D^o$ (43)
4656.974	A	1	2.88	5.53	2½-2½	
4601.34	P		2.88	5.58	2½-1½	
4663.700	A	0	2.88	5.52	2½-3½	$a^6S-z^4F^o$ (44)
4227.14	P		2.68	5.80	2½-2½	$a^6S-z^4P^o$ (45)
4152.98	P		2.88	5.85	2½-1½	
6044.53	P		3.14	5.18	5½-5½	$a^4G-z^6F^o$ (46)
6129.71	P		3.19	5.20	4½-4½	
6150.10	P		3.21	5.21	3½-3½	
6141.01	P		3.22	5.23	2½-2½	
5991.383	B	10	3.14	5.20	5½-4½	
6084.11	B	5	3.19	5.21	4½-3½	
6113.33	B	2	3.21	5.23	3½-2½	
6116.04	P		3.22	5.23	2½-1½	
6185.34	P		3.19	5.18	4½-5½	
6196.71	P		3.21	5.20	3½-4½	
8178.13	P		3.22	5.21	2½-3½	
5932.05	P		3.19	5.27	4½-3½	$a^4G-z^6P^o$ † (47)
5793.16	P		3.21	5.34	3½-2½	
5691.38	P		3.22	5.39	2½-1½	
5362.864	A	5	3.19	5.49	4½-3½	$a^4G-z^4D^o$ (48)
5316.777	A	4	3.21	5.53	3½-2½	
5264.601	A	2	3.22	5.56	2½-1½	
5414.089	A	2	3.21	5.49	3½-3½	
5337.713	A	0	3.22	5.53	2½-2½	
5435.79	P		3.22	5.49	2½-3½	
5316.609	A	8	3.14	5.46	5½-4½	$a^4G-z^4F^o$ (49)
5275.994	A	7	3.19	5.52	4½-3½	
5234.620	A	7	3.21	5.57	3½-2½	
5197.569	A	6	3.22	5.59	2½-1½	
5425.269	A	2	3.19	5.46	4½-4½	
5325.559	A	2	3.21	5.52	3½-3½	
5254.92	P		3.22	5.57	2½-2½	
5477.67	P		3.21	5.46	3½-4½	
5346.56	P	1	3.22	5.52	2½-3½	
4763.79	P		3.21	5.80	3½-2½	$a^4G-z^4P^o$ (50)
4780.60	P		3.22	5.80	2½-2½	
4885.95	P		3.22	5.85	2½-1½	
5728.74	P		3.18	5.34	1½-2½	$b^2P-z^6P^o$ (51)
5605.91	P		3.18	5.39	1½-1½	
5990.59	P		3.32	5.39	½-1½	
5262.48	P		3.18	5.53	1½-2½	$b^2P-z^4D^o$ (52)
5519.83	P		3.32	5.56	½-1½	
5191.58	P		3.18	5.58	1½-1½	
5470.81	P		3.32	5.58	½- ½	
5148.19	P		3.18	5.58	1½- ½	
5181.97	P		3.18	5.57	1½-2½	$b^2P-z^4F^o$ (53)
5445.97	P		3.32	5.59	½-1½	
5128.19	P		3.18	5.59	1½-1½	
4720.15	P		3.18	5.80	1½-2½	$b^2P-z^4P^o$ (54)
4886.92	P		3.32	5.85	½-1½	
4627.88	P		3.18	5.85	1½-1½	
4831.11	P		3.32	5.88	½- ½	
4577.78	P		3.18	5.88	1½- ½	

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
Fe II continued						
5534.860	A	4	3.23	5.46	5½-4½	$b^2H-z^4F^\circ$
5432.98	P		3.25	5.53	4½-3½	(55)
5591.38	P		3.25	5.46	4½-4½	
5525.14	P		3.25	5.49	4½-3½	$b^2H-z^4D^\circ$
						(56)
5909.38	P		3.37	5.46	3½-4½	$a^2F-z^4F^\circ$
5834.93	P		3.41	5.52	2½-3½	(57)
5732.72	P		3.37	5.53	3½-3½	
5725.95	P		3.41	5.57	2½-2½	
5627.49	P		3.37	5.57	3½-2½	
5657.92	P		3.41	5.59	2½-1½	
5835.43	P		3.37	5.49	3½-3½	$a^2F-z^4D^\circ$
5824.40	P		3.41	5.53	2½-2½	(58)
5732.56	P		3.37	5.53	3½-2½	
5737.68	P		3.41	5.56	2½-1½	
5941.36	P		3.41	5.49	2½-3½	
3021.407	A	1	3.37	7.46	3½-3½	$a^2F-y^4P^\circ$
2985.395	A	2	3.41	7.57	2½-1½	(59)
2984.89	P		3.37	7.51	3½-4½	$a^2F-z^4G^\circ$
2998.855	A	2	3.41	7.53	2½-3½	(60)
2971.818	A	1	3.37	7.53	3½-3½	
2991.244	A	0	3.41	7.54	2½-2½	
2984.131	A	7	3.37	7.54	3½-2½	
2968.738	A	2	3.37	7.53	3½-4½	$a^2F-z^4H^\circ$
•2980.963	A	4	3.41	7.55	2½-3½	(81)
2954.050	A	4	3.37	7.55	3½-3½	
2959.601	A	7	3.37	7.54	3½-2½	$a^2F-z^2D^\circ$ †
•2988.817§	A	4	3.41	7.54	2½-2½	(82)
6983.54	P		3.80	5.57	3½-2½	$b^2G-z^4F^\circ$
						(63)
3327.83	P		3.80	7.51	3½-4½	$b^2G-z^4G^\circ$
						(64)
3277.853	A	0	3.75	7.52	4½-5½	$b^2G-z^4H^\circ$
3307.57	P		3.80	7.53	3½-4½	(65)
3266.938	A	4	3.75	7.53	4½-4½	
3289.347	A	7	3.80	7.55	3½-3½	
3249.16	P		3.75	7.55	4½-3½	
3154.201	A	12	3.75	7.86	4½-4½	$b^2G-z^2G^\circ$
3187.853	A	11	3.80	7.89	3½-3½	(66)
3130.561	A	2	3.75	7.69	4½-3½	
3192.059	A	3	3.80	7.66	3½-4½	
3146.748	A	2	3.75	7.67	4½-4½	$b^2G-y^4F^\circ$
m3193.85	P	Fe+	3.79	7.86	3½-3½	(67)
3155.950	A	2	3.75	7.66	4½-3½	
3185.095	A	1	3.80	7.67	3½-3½	
3184.43	P		3.80	7.87	3½-4½	
3070.692	A	4	3.75	7.77	4½-3½	$b^2G-x^4D^\circ$
3075.228	A	2	3.80	7.81	3½-2½	(68)
3106.559	A	4	3.80	7.77	3½-3½	
2985.29	P		3.75	7.89	4½-5½	$b^2G-y^4G^\circ$
3012.59	P		3.80	7.89	3½-4½	(69)
2978.850	A	2	3.75	7.89	4½-4½	
3004.249	A	2	3.80	7.91	3½-3½	
2970.682	A	5	3.75	7.91	4½-3½	
3000.059	A	5	3.80	7.91	3½-2½	
2969.934	A	8	3.80	7.95	3½-2½	$b^2G-z^2F^\circ$ †
2982.239	A	3	3.80	7.94	3½-3½	(70)
9403.38	P		3.89	5.20	3½-4½	$b^4D-z^6F^\circ$ †
9214.85	P		3.87	5.21	2½-3½	(71)
9112.95	P		3.87	5.23	1½-2½	
9061.33	P		3.87	5.23	½-1½	
7841.40	P		3.89	5.46	3½-4½	$b^4D-z^4F^\circ$ †
7479.70	P		3.87	5.52	2½-3½	(72)
7289.05	P		3.87	5.57	1½-2½	
7181.21	P		3.87	5.59	½-1½	
7533.42	B	2	3.89	5.52	3½-3½	
7301.57	P	2	3.87	5.57	2½-2½	
7179.18	P		3.87	5.59	1½-1½	
7711.71	B	15	3.89	5.49	3½-3½	$b^4D-z^4D^\circ$
7462.38	B	20	3.87	5.53	2½-2½	(73)
•7307.97 §	B	50	3.87	5.58	1½-1½	
7224.51	B	12	3.87	5.58	½- ½	
7515.68	B	8	3.89	5.53	3½-2½	
•7320.70 §	B	40	3.87	5.56	2½-1½	
7232.39	B	8	3.87	5.58	1½- ½	
7655.47	B	1	3.87	5.49	2½-3½	
7449.34	B	8	3.87	5.53	1½-2½	
7310.24	B	8	3.87	5.56	½-1½	
8458.378	A	200	3.89	5.80	3½-2½	$b^4D-z^4P^\circ$
8247.562	A	80	3.87	5.85	2½-1½	(74)
•8147.735§	A	30?	3.87	5.88	1½- ½	
8418.905	A	20	3.87	5.80	2½-2½	
6238.375	A	20	3.87	5.85	1½-1½	
8149.238	A	20	3.87	5.88	½- ½	
6407.30	B	1	3.87	5.80	1½-2½	
6239.95	P	2n	3.87	5.85	½-1½	
3535.628	A	2	3.87	7.37	2½-1½	$b^4D-z^4S^\circ$
3532.69	P		3.87	7.37	1½-1½	(75)
3533.19	P		3.87	7.37	½-1½	
3456.928	A	5	3.89	7.46	3½-2½	$b^4D-y^4P^\circ$
3338.522	A	3	3.87	7.57	2½-1½	(78)
3369.349	A	3	3.87	7.53	1½- ½	
3445.58	P		3.87	7.46	2½-2½	
3335.90	P		3.87	7.57	1½-1½	
3369.80	P		3.87	7.53	½- ½	
3442.79	P		3.87	7.46	1½-2½	
3338.34	P		3.87	7.57	½-1½	
Fe II continued						
3388.134	A	?2	3.89	7.53	3½-4½	$b^4D-z^4H^\circ$
3358.252	A	3	3.87	7.55	2½-3½	(77)
3376.24	P		3.89	7.54	3½-2½	$b^4D-z^2D^\circ$
3252.40	P		3.87	7.67	2½-1½	(78)
3250.34	P		3.87	7.67	½-1½	
3365.413	A	1	3.87	7.54	2½-2½	
3249.911	A	1	3.87	7.67	1½-1½	
3362.764	A	0	3.87	7.54	1½-2½	
3305.634	A	1	3.89	7.62	3½-3½	$b^4D-y^4D^\circ$
3193.76	P		3.87	7.74	2½-2½	(79)
3163.86	P		3.87	7.77	1½-1½	
3177.65	P		3.87	7.76	½- ½	
3203.509	A	1	3.89	7.74	3½-2½	
3166.22	P		3.87	7.77	2½-1½	
3177.260	A	1	3.87	7.76	1½- ½	
•3295.240 §	A	4	3.87	7.62	2½-3½	
3191.374	A	1	3.87	7.74	1½-2½	
3164.26	P		3.87	7.77	½-1½	
3267.035	A	3	3.89	7.66	3½-4½	$b^4D-z^2G^\circ$
3231.702	A	5	3.87	7.69	2½-3½	(80)
3241.685	A	2	3.89	7.69	3½-3½	
3259.048	A	10	3.89	7.67	3½-4½	$b^4D-y^4F^\circ$
3258.773	A	10	3.87	7.66	2½-3½	(81)
3247.171	A	9	3.87	7.67	1½-2½	
3237.815	A	8	3.87	7.68	½-1½	
3268.92	P		3.89	7.66	3½-3½	
3249.657	A	4	3.87	7.67	2½-2½	
3237.402	A	5	3.87	7.68	1½-1½	
3259.75	P		3.89	7.67	3½-2½	
3239.87	P		3.87	7.68	2½-1½	
3177.531	A	10	3.89	7.77	3½-3½	$b^4D-x^4D^\circ$
3135.360	A	9	3.87	7.81	2½-2½	(82)
3114.295	A	7	3.87	7.83	1½-1½	
3105.548	A	5	3.87	7.85	½- ½	
3144.751	A	5	3.89	7.81	3½-2½	
•3116.590§	A	6	3.87	7.83	2½-1½	
•3105.166	A	5	3.87	7.85	1½- ½	
3167.94	P		3.87	7.77	2½-3½	
3133.048	A	4	3.87	7.81	1½-2½	
3114.680	A	4	3.87	7.83	½-1½	
3070.591	A	tr	3.89	7.91	3½-3½	$b^4D-y^4G^\circ$
						(83)
3047.60	P		3.89	7.94	3½-3½	$b^4D-z^2F^\circ$
3025.99	P		3.87	7.95	2½-2½	(84)
3034.712	A	0	3.89	7.95	3½-2½	
3038.777	A	3	3.87	7.94	2½-3½	
3023.859	A	1	3.87	7.95	1½-2½	
2997.749	A	tr d	3.89	8.00	3½-4½	$b^4D-y^2G^\circ$
						(85)
2989.01	P		3.87	8.00	2½-1½	$b^4D-z^2P^\circ$
2989.367	A	tr	3.87	8.00	1½- ½	(86)
2986.91	P		3.87	8.00	1½-1½	
2989.731	A	0	3.87	8.00	½- ½	
2987.27	P		3.87	8.00	½-1½	
7838.09	P		3.95	5.52	3½-3½	$b^2F-z^4F^\circ$ †
7534.83	P		3.93	5.57	2½-2½	(87)
3519.72	P		3.95	7.46	3½-2½	$b^2F-y^4P^\circ$
3388.452	A	1	3.93	7.57	2½-1½	(88)
3496.67	P		3.93	7.46	2½-2½	
3470.242	A	in	3.95	7.51	3½-4½	$b^2F-z^4G^\circ$
3430.15	P		3.93	7.53	2½-3½	(89)
3452.33	P		3.95	7.53	3½-3½	
3420.184	A	0	3.93	7.54	2½-2½	
3442.239	A	3	3.95	7.54	3½-2½	
3448.433	A	1	3.95	7.53	3½-4½	$b^2F-z^4H^\circ$
3406.78	P		3.93	7.55	2½-3½	(90)
3428.84	P		3.95	7.55	3½-3½	
3436.112	A	5	3.95	7.54	3½-2½	$b^2F-z^2D^\circ$
3297.888	A	5	3.93	7.67	2½-1½	(91)
3414.144	A	2	3.93	7.54	2½-2½	
3323.066	A	8	3.95	7.86	3½-4½	$b^2F-z^2G^\circ$
3278.808	A	5	3.93	7.69	2½-3½	(92)
•3298.826§	A	2	3.95	7.69	3½-3½	
3314.80	P		3.95	7.67	3½-4½	$b^2F-y^4F^\circ$
3304.433	A	1	3.93	7.66	2½-3½	(93)
3325.012	A	1	3.95	7.66	3½-3½	
3295.06	P		3.93	7.87	2½-2½	
3315.53	P		3.95	7.67	3½-2½	
3284.996	A	0	3.93	7.68	2½-1½	
3257.358	A	1	3.95	7.74	3½-2½	$b^2F-y^4D^\circ$
						(94)
3230.496	A	1	3.95	7.77	3½-3½	$b^2F-x^4D^\circ$
3177.81	P		3.93	7.81	2½-2½	(95)
3196.63	P		3.95	7.81	3½-2½	
3158.32	P		3.93	7.83	2½-1½	
3211.072	A	1	3.93	7.77	2½-3½	
3129.013	A	1	3.95	7.89	3½-4½	$b^2F-y^4G^\circ$
3120.023	A	1	3.95	7.91	3½-3½	(96)
3097.415	A	2	3.93	7.91	2½-2½	
3115.492	A	1	3.95	7.91	3½-2½	
3098.296	A	5	3.95	7.94	3½-3½	$b^2F-z^2F^\circ$
3065.315	A	6	3.93	7.95	2½-2½	(97)
3083.024	A	3	3.95	7.95	3½-2½	
m3078.44	P	Fe	3.93	7.94	2½-3½	
3044.843	A	5	3.95	8.00	3½-4½	$b^2F-y^2G^\circ$
3002.330	A	5	3.93	8.04	2½-3½	(98)
3027.38	P		3.93	8.00	2½-1½	$b^2F-z^2P^\circ$
						(99)
Fe II continued						
•2979.096	A	3	3.95	8.09	3½-4½	$b^2F-z^2H^\circ$
						(100)
3602.60	P		4.06	7.48	6½-5½	$a^2I-z^4G^\circ$
3583.54	P		4.06	7.51	5½-4½	(101)
3607.05	P		4.06	7.48	5½-5½	
3511.25	P		4.06	7.57	6½-7½	$a^2I-z^4I^\circ$
3493.34	P		4.06	7.60	5½-6½	(102)
3489.17	P		4.06	7.60	6½-6½	
3486.08	P		4.06	7.60	5½-5½	
3481.92	P		4.06	7.60	6½-5½	
3495.16	P		4.06	7.59	5½-4½	
3426.81	P		4.06	7.66	5½-4½	$a^2I-z^2G^\circ$
						(103)
3418.02	P		4.06	7.67	5½-4½	$a^2I-y^4F^\circ$
						(104)
3398.355	A	4	4.06	7.69	6½-6½	$a^2I-z^2I^\circ$
3360.103	A	3	4.06	7.74	5½-5½	(105)
m3356.24	P	Fe+	4.06	7.74	6½-5½	
3403.32	P		4.06	7.69	5½-6½	
3220.835	A	0	4.06	7.89	5½-4½	$a^2I-y^4G^\circ$
						(106)
3131.719	A	4	4.06	8.00	5½-4½	$a^2I-y^2G^\circ$
						(107)
3077.168	A	10	4.06	8.07	6½-5½	$a^2I-z^2H^\circ$
3062.234	A	9	4.06	8.09	5½-4½	(108)
3080.405	A	2	4.06	8.07	5½-5½	
3056.802	A	5	4.06	8.10	6½-5½	$a^2I-x^4G^\circ$
3049.18	P		4.06	8.11	5½-4½	(109)
3060.023	A	0	4.06	8.10	5½-5½	
3020.001	A	?0	4.06	8.15	5½-4½	$a^2I-x^4F^\circ$
						(110)
3680.98	P		4.13	7.48	4½-5½	$c^2G-z^4G^\circ$
3661.17	P		4.14	7.51	3½-4½	(111)
3656.50	P		4.13	7.51	4½-4½	
3641.22	P		4.14	7.53	3½-3½	
3636.61	P		4.13	7.53	4½-3½	
3629.99	P		4.14	7.54	3½-2½	
3645.78	P		4.13	7.52	4½-5½	$c^2G-z^4H^\circ$
3636.90	P		4.14	7.53	3½-4½	(112)
3632.292	A	3	4.13	7.53	4½-4½	
3614.873	A	5	4.14	7.55	3½-3½	
3610.33	P		4.13	7.55	4½-3½	
3555.08	P		4.13	7.60	4½-5½	$c^2G-z^4I^\circ$
3568.97	P		4.14	7.59	3½-4½	(113)
3564.54	P		4.13	7.59	4½-4½	
3493.468	A	10	4.13	7.66	4½-4½	$c^2G-z^2G^\circ$
3468.680	A	8	4.14	7.69	3½-3½	(114)
3464.497	A	3	4.13	7.69	4½-3½	
3497.73	P		4.14	7.66	3½-4½	
•3484.348§	A	1	4.13	7.67	4½-4½	$c^2G-y^4F^\circ$
3499.877	A	4	4.14	7.66	3½-3½	(115)
3495.616	A	4	4.13	7.66	4½-3½	
3424.17	P		4.13	7.74	4½-5½	$c^2G-z^2I^\circ$
						(116)
3391.303	A	1	4.13	7.77	4½-3½	$c^2G-x^4D^\circ$
3357.965	A	0	4.14	7.81	3½-2½	(117)
3395.336	A	4	4.14	7.77	3½-3½	
3287.468	A	1	4.13	7.89	4½-5½	$c^2G-y^4G^\circ$
3283.40	P		4.14	7.89	3½-4½	(118)
3279.649	A	2	4.13	7.89	4½-4½	
3273.499	A	3	4.14	7.91	3½-3½	
3269.772	A	2	4.13	7.91	4½-3½	
3268.512	A	3	4.14	7.91	3½-2½	
3243.733	A	8	4.13	7.94	4½-3½	$c^2G-z^2F^\circ$
3232.791	A	7	4.14	7.95	3½-2½	(119)
3247.392	A	3	4.14	7.94	3½-3½	
3187.294	A	8	4.13	8.00	4½-4½	$c^2G-y^2G^\circ$
3162.799	A	8	4.14	8.04	3½-3½	(120)
3159.32	P		4.13	8.04	4½-3½	
3190.84	P		4.14	8.00	3½-4½	
3134.17	P		4.13	8.07	4½-5½	$c^2G-z^2H^\circ$ †
3118.74	P		4.14	8.09	3½-4½	(121)
3079.356	A	0	4.13	8.14	4½-3½	$c^2G-x^4G^\circ$
3068.757	A	2	4.14	8.16	3½-2½	(122)
•3105.166	A	5	4.14	8.11	3½-4½	
3071.653	A	2	4.13	8.15	4½-4½	$c^2G-x^4F^\circ$
3040.829	A	0	4.14	8.19	3½-3½	(123)
3029.681	A	0	4.13	8.20	4½-5½	$c^2G-y^4H^\circ$
3013.802	A	0	4.14	8.23	3½-3½	(124)
4270.39	P		4.48	7.36	2½-1½	$b^2D-z^4S^\circ$
4247.43	P		4.46	7.36	1½-1½	(125)
4046.81	P		4.48	7.53	2½-3½	$b^2D-z^4G^\circ$
4012.467	A	1	4.46	7.54	1½-2½	(126)
4032.946	A	3	4.48	7.54	2½-2½	
4024.552	A	5	4.48	7.54	2½-2½	$b^2D-z^2D^\circ$
m3845.18	P	Fe	4.46	7.67	1½-1½	(127)
•3863.953	A	1	4.48	7.67	2½-1½	
4004.15	P		4.46	7.54	1½-2½	
3872.98	P		4.48	7.66	2½-3½	$b^2D-y^4F^\circ$
3841.35	P		4.46	7.67	1½-2½	(128)
3860.12	P		4.48	7.67	2½-2½	
3827.67	P		4.46	7.68	1½-1½	
3846.31	P		4.48	7.68	2½-1½	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Fe II continued						
3834.81	P		4.48	7.69	2½-3½	$b^2D-z^2G^o$ (129)
3781.510	A	1	4.48	7.74	2½-2½	$b^2D-y^4D^o$
3725.304	A	3	4.46	7.77	1½-1½	(130)
3745.36	P		4.48	7.77	2½-3½	$b^2D-x^4D^o$
3682.66	P		4.46	7.81	1½-2½	(131)
3699.90	P		4.48	7.81	2½-3½	
3655.77	P		4.46	7.83	1½-1½	
3873.77	P		4.48	7.83	2½-1½	
3644.19	P		4.46	7.85	1½- ½	
3566.148	A	3	4.48	7.94	2½-3½	$b^2D-z^2F^o$
3532.647	A	2	4.46	7.95	1½-2½	(132)
3548.55	P		4.48	7.95	2½-2½	
m3497.81	P	Fe	4.48	8.00	2½-1½	$b^2D-z^2P^o$
3485.728	A	1	4.46	8.00	1½- ½	(133)
3482.39	P		4.46	8.00	1½-1½	
3388.447	A	tr	4.48	8.14	2½-3½	$b^2D-x^4G^o$ (134)
3318.862	A	0	4.46	8.18	1½- ½	$b^2D-z^2S^o$ (135)
3318.62	P		4.48	8.19	2½-3½	$b^2D-x^4F^o$
3292.89	P		4.48	8.22	2½-1½	(136)
m3251.34	P	Fe	4.48	8.27	2½-2½	$b^2D-y^2D^o$
3209.603	A	1	4.46	8.30	1½-1½	(137)
3043.31	P		4.48	8.53	2½-2½	$b^2D-x^4P^o$
3013.38	P		4.46	8.56	1½-1½	(138)
3024.92	P		4.48	8.56	2½-1½	
3002.09	P		4.46	8.57	1½- ½	
3031.63	P		4.46	8.53	1½-2½	
2997.298	A	7	4.48	8.59	2½-3½	$b^2D-y^2F^o$
2982.059	A	8	4.46	8.60	1½-2½	(139)
2993.366	A	1n	4.48	8.60	2½-2½	
4455.85	P		4.60	7.37	½-1½	$a^2S-z^4S^o$ (140)
4147.26	P		4.60	7.57	½-1½	$a^2S-y^4P^o$
4199.09	P		4.60	7.53	½- ½	(141)
4015.20	P		4.60	7.67	½-1½	$a^2S-z^2D^o$ (142)
3810.21	P		4.60	7.83	½-1½	$a^2S-x^4D^o$
3796.55	P		4.60	7.85	½- ½	(143)
3621.273	A	6	4.60	8.00	½-1½	$a^2S-z^2P^o$
3624.890	A	5	4.60	8.00	½- ½	(144)
3444.76	P		4.60	8.18	½- ½	$a^2S-z^2S^o$ (145)
4650.04	P		4.71	7.37	2½-1½	$c^2D-z^4S^o$
4660.93	P		4.72	7.37	1½-1½	(146)
4495.52	P		4.71	7.46	2½-2½	$c^2D-y^4P^o$†
4324.36	P		4.72	7.57	1½-1½	(147)
4360.03	P		4.71	7.54	2½-2½	$c^2D-z^2D^o$
4180.97	P		4.72	7.67	1½-1½	(148)
4172.20	P		4.71	7.67	2½-1½	
4369.61	P		4.72	7.54	1½-2½	
4182.69	P		4.71	7.66	2½-3½	$c^2D-y^4F^o$
4176.44	P		4.72	7.67	1½-2½	(149)
4167.69	P		4.71	7.67	2½-2½	
4160.28	P		4.72	7.68	1½-1½	
4151.60	P		4.71	7.68	2½-1½	
4138.21	P		4.71	7.69	2½-3½	$c^2D-z^2G^o$ (150)
4031.486	A	1	4.71	7.77	2½-1½	$c^2D-y^4D^o$
4084.58	P		4.72	7.74	1½-2½	(151)
3863.413	A	1	4.71	7.91	2½-3½	$c^2D-y^4G^o$
•3863.953	A	1	4.72	7.91	1½-2½	(152)
3827.079	A	4	4.71	7.94	2½-3½	$c^2D-z^2F^o$
3814.121	A	4	4.72	7.95	1½-2½	(153)
3806.82	P		4.71	7.95	2½-2½	
•3748.489§	A	8	4.71	8.00	2½-1½	$c^2D-z^2P^o$
3759.460	A	6	4.72	8.00	1½- ½	(154)
3755.563	A	4	4.72	8.00	1½-1½	
3566.052	A	2	4.72	8.18	1½- ½	$c^2D-z^2S^o$ (155)
m3466.85	P	Fe	4.71	8.27	2½-2½	$c^2D-y^2D^o$
3440.25	P		4.72	8.30	1½-1½	(156)
3472.886	A	0	4.72	8.27	1½-2½	
•3179.504§	A	8	4.71	8.59	2½-3½	$c^2D-y^2F^o$
•3180.164§	A	7	4.72	8.60	1½-2½	(157)
3175.077	A	4	4.71	8.60	2½-2½	
3089.388	A	4	4.71	8.71	2½-3½	$c^2D-x^2G^o$ (158)
2972.769	A	1	5.46	9.61	4½-4½	$z^4F^o-e^6D$
2989.079	A	tr n	5.57	9.69	2½-2½	(159)
2991.817	A	2n	5.49	9.61	3½-4½	$z^4D^o-e^6D$
2958.528	A	1n	5.49	9.86	3½-3½	(160)
2962.936	A	1n	5.53	9.69	2½-2½	
2968.119	A	0	5.56	9.72	1½-1½	
•2972.016§	A	0	5.58	9.73	½- ½	
6219.35	P		5.54	7.53	3½-4½	$c^2F-z^4H^o$
6160.75	P		5.55	7.55	2½-3½	(161)
6155.24	P		5.54	7.55	3½-3½	
Fe II continued						
6199.16	B	2	5.54	7.54	3½-2½	$c^2F-z^4G^o$ (162)
6179.378	A	5	5.54	7.54	3½-2½	$c^2F-z^2D^o$
5813.67	B	3	5.55	7.67	2½-1½	(163)
3184.94	P		5.55	7.54	2½-2½	
5823.17	B	3	5.54	7.66	3½-4½	$c^2F-z^2G^o$
5747.88	P		5.55	7.69	2½-3½	(164)
5797.81	P		5.54	7.67	3½-4½	$c^2F-y^4F^o$
5834.06	P		5.55	7.66	2½-3½	(165)
5829.12	P		5.54	7.66	3½-3½	
5804.91	P		5.55	7.67	2½-2½	
5800.02	P		5.54	7.67	3½-2½	
5773.75	P		5.55	7.68	2½-1½	
5544.76	P		5.54	7.77	3½-3½	$c^2F-x^4D^o$ (166)
5160.824	A	1	5.54	7.94	3½-3½	$c^2F-z^2F^o$
5127.866	A	1	5.55	7.95	2½-2½	(167)
5124.05	P		5.54	7.95	3½-2½	
5164.69	P		5.55	7.94	2½-3½	
5019.478	A	0	5.54	8.00	3½-4½	$c^2F-y^2G^o$
4953.979	A	0	5.55	8.04	2½-3½	(168)
4810.760	A	0	5.54	8.11	3½-4½	$c^2F-x^4G^o$
4760.15	P		5.55	8.14	2½-3½	(169)
4738.52	P		5.54	8.15	3½-4½	$c^2F-x^4F^o$
4661.19	P		5.55	8.19	2½-3½	(170)
4658.03	P		5.54	8.19	3½-3½	
4629.90	P		5.55	8.21	2½-2½	
4626.78	P		5.54	8.21	3½-2½	
4610.59	P		5.55	8.22	2½-1½	
m4526.58	P	Fe	5.54	8.27	3½-2½	$c^2F-y^2D^o$
4474.194	A	0n	5.55	8.30	2½-1½	(171)
4529.56	P		5.55	8.27	2½-2½	
4048.831	A	3	5.54	8.59	3½-3½	$c^2F-y^2F^o$
m4044.01	P	Fe	5.55	8.60	2½-2½	(172)
4041.64	P		5.54	8.60	3½-2½	
4051.21	P		5.55	8.59	2½-3½	
3935.942	A	6	5.54	8.68	3½-4½	$c^2F-x^2G^o$
3906.037	A	5	5.55	8.71	2½-3½	(173)
3673.35	P		5.54	8.90	3½-4½	$c^2F-x^2H^o$ (174)
3604.21	P		5.54	8.97	3½-3½	$c^2F-w^4D^o$
3610.38	P		5.55	8.96	2½-2½	(175)
3608.49	P		5.54	8.96	3½-2½	
3622.81	P		5.55	8.95	2½-1½	
3606.18	P		5.55	8.97	2½-3½	
3557.548	A	2	5.54	9.01	3½-3½	$c^2F-x^2F^o$
m3554.50	P	Fe	5.55	9.02	2½-2½	(176)
3366.960	A	3	5.54	9.21	3½-2½	$c^2F-x^2D^o$
3381.003	A	4	5.55	9.20	2½-1½	(177)
3368.626	A	0	5.55	9.21	2½-2½	
3257.894	A	3	5.54	9.33	3½-3½	$c^2F-w^2F^o$
3226.378	A	2	5.55	9.37	2½-2½	(178)
3224.86	P		5.54	9.37	3½-2½	
3259.44	P		5.55	9.33	2½-3½	
3045.313	A	0	5.54	9.60	3½-2½	$c^2F-v^2F^o$
3046.675	A	1	5.55	9.60	2½-2½	(179)
2959.841	A	4	5.54	9.71	3½-2½	$c^2F-w^2D^o$
•2979.096	A	3	5.55	9.69	2½-1½	(180)
2961.119	A	tr	5.55	9.71	2½-2½	
3078.698	A	8n	5.80	9.81	2½-3½	$z^4P^o-e^4D$
3076.455	A	6n	5.85	9.86	1½-2½	(181)
3071.141	A	4n	5.88	9.90	½-1½	
3036.986	A	5n	5.80	9.86	2½-2½	
3049.011	A	5n	5.85	9.90	1½-1½	
3055.368	A	4n	5.88	9.92	½- ½	
•3010.220§	A	1	5.80	9.90	2½-1½	
3033.445	A	2n	5.85	9.92	1½- ½	
5952.55	P		5.93	8.00	2½-1½	$d^2D-z^2P^o$
5835.50	P		5.89	8.00	1½- ½	(182)
5826.12	P		5.89	8.00	1½-1½	
5856.45	P		5.93	8.04	2½-3½	$d^2D-y^2G^o$ (183)
5451.60	P		5.93	8.19	2½-3½	$d^2D-x^4F^o$
5304.26	P		5.89	8.21	1½-2½	(184)
5408.842	A	1	5.93	8.21	2½-2½	
5278.955	A	0n	5.89	8.22	1½-1½	
5382.52	P		5.93	8.22	2½-1½	
5272.413	A	2	5.93	8.27	2½-2½	$d^2D-y^2D^o$
5100.840	A	4n	5.89	8.30	1½-1½	(185)
5173.002	A	0	5.89	8.27	1½-2½	
4635.328	A	5	5.93	8.59	2½-3½	$d^2D-y^2F^o$
4549.214	A	4	5.89	8.60	1½-2½	(186)
4625.911	A	1	5.93	8.60	2½-2½	
4448.248	A	1n	5.93	8.71	2½-3½	$d^2D-x^2G^o$ (187)
4111.902	A	1	5.93	8.93	2½-3½	$d^2D-w^4F^o$
4069.883	A	1	5.89	8.92	1½-2½	(188)
4131.17	P		5.93	8.92	2½-2½	
4081.42	P		5.89	8.91	1½-1½	
4143.07	P		5.93	8.91	2½-1½	
4061.787	A	1	5.93	8.97	2½-3½	$d^2D-w^4D^o$
4007.72	P		5.89	8.96	1½-2½	(189)
Fe II continued						
4002.549	A	3	5.93	9.01	2½-3½	$d^2D-x^2F^o$
3938.969	A	4	5.89	9.02	1½-2½	(190)
3996.36	P		5.93	9.02	2½-2½	
3975.029	A	2	5.93	9.04	2½-1½	$d^2D-y^2P^o$
3918.51	P		5.89	9.03	1½- ½	(191)
3762.894	A	5	5.93	9.21	2½-2½	$d^2D-x^2D^o$
m3727.04	P	Fe	5.89	9.20	1½-1½	(192)
3778.37	P		5.93	9.20	2½-1½	
3711.974	A	1	5.89	9.21	1½-2½	
3627.168	A	1	5.93	9.33	2½-3½	$d^2D-w^2F^o$ (193)
3321.491	A	1	5.93	9.65	2½-3½	$d^2D-v^2F^o$
3324.838	A	1	5.89	9.60	1½-2½	(194)
3365.640	A	0	5.93	9.60	2½-2½	
3261.509	A	1	5.93	9.71	2½-2½	$d^2D-w^2D^o$ (195)
3203.741	A	0	5.93	9.78	2½-1½	$d^2D-w^2P^o$ (196)
7287.36	B	6	6.19	7.89	4½-5½	$c^4F-y^4G^o$
7264.99	B	10	6.20	7.89	3½-4½	(197)
7193.23	B	8	6.19	7.91	3½-3½	
7134.99	B	5	6.18	7.91	1½-2½	
6966.9	B	2	6.18	7.95	1½-2½	$c^4F-z^2F^o$ (198)
6482.205	A	1	6.19	8.10	4½-5½	$c^4F-x^4G^o$
6446.43	B	20	6.20	8.11	3½-4½	(199)
6331.969	B	12	6.19	8.14	2½-3½	
6433.85	B	3	6.19	8.11	4½-4½	
6305.318	B	15	6.19	8.15	4½-4½	$c^4F-x^4F^o$
6175.158	B	15	6.20	8.19	3½-3½	(200)
6103.54	B	8	6.19	8.21	2½-2½	
6045.497	B	6	6.18	8.22	1½-1½	
4444.563	A	1	6.19	8.97	4½-4½	$c^4F-w^4F^o$ (201)
4359.12	P		6.19	9.02	4½-4½	$c^4F-w^2G^o$
4355.03	P		6.20	9.03	3½-3½	(202)
4349.28	P		6.19	9.03	4½-3½	
4364.89	P		6.20	9.02	3½-4½	
4346.50	P		6.19	9.03	2½-3½	
8487.43	B	4	6.78	8.68	3½-4½	$d^2F-x^2G^o$
6386.75	B	2	6.77	8.71	2½-3½	(203)
5519.72	P		6.78	9.01	3½-3½	$d^2F-x^2F^o$
5497.70	P		6.77	9.02	2½-2½	(204)
5074.063	A	1	6.78	9.21	3½-2½	$d^2F-x^2D^o$
5093.470	A	1	6.77	9.20	2½-1½	(205)
4830.40	P		6.78	9.33	3½-3½	$d^2F-w^2F^o$
4750.49	P		6.77	9.37	2½-2½	(206)
•3451.614§	A	2	6.78	10.35	3½-2½	$d^2F-v^2D^o$
3390.082	A	2	6.77	10.41	2½-1½	(207)
3451.228	A	2	6.78	10.35	3½-4½	$d^2F-v^2G^o$
3515.818	A	2	6.77	10.28	2½-3½	(208)
7334.66	B	8	7.24	8.92	4½-5½	$d^2G-x^2H^o$
7425.12	P		7.24	8.90	3½-4½	(209)
6677.33	B	3	7.24	9.09	4½-5½	$d^2G-w^2H^o$
6627.28	B	5	7.24	9.10	3½-4½	(210)
5891.36	B	8	7.24	9.33	4½-3½	$d^2G-w^2F^o$
5795.87	B	4n	7.24	9.37	3½-2½	(211)
3960.895	A	3	7.24	10.35	4½-4½	$d^2G-v^2G^o$
4057.457	A	2	7.24	10.28	3½-3½	(212)
4354.358	A	2n	7.62	10.45	3½-3½	$y^4D^o-f^4D$
4507.195	A	0n	7.74	10.48	2½-2½	(213)
4066.328	A	?2	7.87	10.70	1½-1½	$z^2D^o-e^4F$ (214)
5785.0	B	5N	7.67	9.81	4½-3½	$y^4F^o-e^4D$ (215)
4366.165	A	tr	7.67	10.50	2½-1½	$y^4F^o-f^4D$ (216)
6061.04	B	3n	7.77	9.81	3½-3½	$x^4D^o-e^4D$ (217)
4913.368	A	1	7.83	10.35	1½-2½	x^4D^o-32 (218)
4598.528	A	1n	7.77	10.45	3½-3½	$x^4D^o-f^4D$
4628.821	A	0n	7.81	10.48	2½-2½	(219)
4631.895	A	0n	7.83	10.50	1½-1½	
4625.549	A	tr	7.85	10.51	½- ½	
4652.280	A	tr	7.85	10.50	½-1½	
4313.034	A	1n	7.77	10.63	3½-4½	$x^4D^o-e^4F$
4319.717	A	1n	7.81	10.67	2½-3½	(220)
4321.341	A	1n	7.83	10.69	1½-2½	
4318.216	A	0N	7.85	10.70	½-1½	
5081.920	A	tr	7.91	10.33	3½-3½?	y^4G^o-30 (221)
4493.579	A	1n	7.89	10.63	5½-4½	$y^4G^o-e^4F$
4449.663	A	1n	7.89	10.67	4½-3½	(222)
4431.626	A	1n	7.91	10.69	3½-2½	
m4508.26	P	Fe+	7.89	10.63	4½-4½	

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
Fe II continued						
2987.542	A	1n	8.00	12.13	$4\frac{1}{2}$-$5\frac{1}{2}$	y^2G^o-e^4H (223)
5529.940	A	2	8.18	10.41	$\frac{1}{2}$-$1\frac{1}{2}$	z^2S^o-e^6P (224)
5303.419	A	0n	8.15	10.48	$4\frac{1}{2}$-$5\frac{1}{2}$	x^4F^o-e^4G (225)
5315.618	A	0n	8.19	10.52	$3\frac{1}{2}$-$4\frac{1}{2}$	
5278.265	A	0n	8.21	10.55	$2\frac{1}{2}$-$3\frac{1}{2}$	
3117.505	A	0	8.19	12.15	$3\frac{1}{2}$-$4\frac{1}{2}$	x^4F^o-e^4H (226)
*3140.692§	A	1	8.20	12.13	$5\frac{1}{2}$-$5\frac{1}{2}$	y^4H^o-e^4H (227)
3138.207	A	1n	8.22	12.15	$4\frac{1}{2}$-$4\frac{1}{2}$	
3300.056	A	tr	8.40	12.13	$4\frac{1}{2}$-$5\frac{1}{2}$	†y^2H^o-e^4H (228)

Strongest Unclassified Lines of Fe II

*7376.46 §	B	20	5070.957	A	2
7067.44	B	20	5061.794	A	1
6586.69	B	5	5035.773	A	3
6517.01	8	5	5032.794	A	1
6506.33	B	5	*5030.740§§	A	3
6493.05	B	8	5022.874	A	1
6491.28	B	4	5004.264	A	3
6442.97	B	6	4948.848	A	1
6385.473	B	5	4579.523	A	1
6383.753	B	15	4480.687	A	1
6375.96	B	4n	4455.258	A	3
6248.916	B	4	4451.545	A	4
6233.52	B	3	4402.875	A	2
			4368.262	A	1
5962.4	B	30N	4361.249	A	2
5956.5	B	4N	4357.574	A	4
5903.6	B	8N	4331.529	A	3
5891.9	B	3	4286.311	A	1
5835.61	B	3n	4263.895	A	1
5567.815	B	10	3860.915	A	3
5506.268	A	3	3822.737	A	3
*5503.397§	A	1	3725.901	A	?2
			3652.748	A	1
*5466.94 §	B	30	3624.688	A	2
5466.021	A	2	*3482.426§§	A	2
5427.832	B	30	*3473.825§§	A	2
5403.113	A	2	3453.595	A	2
5387.136	A	2	3451.318	A	2
5318.267	A	0	3386.724	A	2
5318.025	A	1	3356.265	A	2
5248.028	A	2	*3329.070§	A	2
5169.733	A	1	*3299.771§§	A	1
5159.93	B	4			
5156.10	B	6	*3228.600§	A	?3
5149.538	A	3	3223.444	A	1
5147.09	B	2	3171.016	A	1
5117.107	A	0	3165.957	A	3n
5101.48	B	2N			
5100.95	B	15	3123.715	A	1
5100.704	A	2	3119.660	A	?1
5097.375	A	?1	3115.352	A	2
5093.646	A	1			
5089.278	A	0	3071.270	A	2
5087.25	B	3	*3063.814§§	A	1
5075.829	A	1	2968.906	A	2
			2963.897	A	3n

Fe III	I P 30.48		Anal B	List A	June 1942	
3069.335	B	4	6.21	10.23	4-4	b^3F-z^7P^o (1)
3120.24	B	1	6.21	10.16	3-3	
*3142.22 §	B	2	6.20	10.12	2-2	
3071.238	8	5	6.21	10.23	3-4	
3109.59	B	1	6.20	10.16	2-3	
5163.74	B	1	7.84	10.23	4-4?	a^5G-z^7P^o (2)
6102.59	P		8.21	10.23	3-4	a^5P-z^7P^o (3)
6322.98	P		8.21	10.16	2-3	
6487.48	P		8.22	10.12	1-2	
6299.74	P		8.21	10.16	3-3	
6458.68	P		8.21	10.12	2-2	
6434.44	P		8.21	10.12	3-2	
4419.59	A	10	8.21	11.00	3-3	a^5P-z^5P^o (4)
4382.31	B	1	8.21	11.03	2-2	
4365.56	B	3	8.22	11.05	1-1	
4371.10	B	1	8.21	11.03	3-2	
4352.70	B	4	8.21	11.05	2-1	
4430.95	A	7	8.21	11.00	2-3	
4395.78	A	6	8.22	11.03	1-2	
5156.0	A	4	8.60	11.00	4-3	b^5D-z^5P^o (5)
*5127.32	B	6	8.62	11.03	3-2	
5086.69	B	3	8.62	11.05	2-1	
5193.89	B	4	8.62	11.00	3-3	
*5127.32	B	6	8.62	11.03	2-2	
5073.78	B	3	8.62	11.05	1-1	
5194.43	B	4	8.62	11.00	2-3	
5114.10	B	1	8.62	11.03	1-2	
5063.30	B	2	8.61	11.05	0-1	

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
Fe III continued						
3198.81	A	5	10.17	14.03	3-4	c^3D-z^5G^o (6)
3204.76	A	6	10.17	14.02	2-3	
3215.60	A	8	10.18	14.02	1-2	
3201.90	A	1	10.17	14.02	3-3	
3206.98	A	4	10.17	14.02	2-2	
3266.88	A	20	10.26	14.04	5-6	a^5F-z^5G^o (7)
3276.08	A	15	10.27	14.03	4-5	
3288.81	A	15	10.28	14.03	3-4	
3305.22	A	10	10.29	14.02	2-3	
3339.36	A	10	10.33	14.02	1-2	
*3273.53 §	A	6	10.26	14.03	5-5	
3280.58	A	6	10.27	14.03	4-4	
*3292.04§§	A	8	10.28	14.02	3-3	
3307.53	A	5	10.29	14.02	2-2	
3278.04	B	1d	10.26	14.03	5-4	
3283.75	A	2	10.27	14.02	4-3	
3109.32	B	1	10.26	14.23	5-5	a^5F-z^5H^o (8)
*3129.04 §	B	5	10.27	14.21	4-4?	
3111.609	A	8	10.27	14.23	4-5	
3164.67	A	3	10.29	14.19	2-3	
3013.125	A	20	10.26	14.36	5-5	a^5F-z^5F^o † (9)
3001.589	A	12	10.27	14.38	4-4	
3002.99	A	5	10.33	14.44	1-1	
3015.230	A	7	10.27	14.36	4-5	
3008.506	A	5	10.28	14.38	3-4	
3000.836	B	tr	10.27	14.38	4-3	a^5F-z^5D^o † (10)
3012.847	B	2	10.28	14.37	3-2	
3027.46	A	3	10.29	14.37	2-1	
3055.55	A	5	10.33	14.37	1-0	
3007.802	A	6	10.28	14.38	3-3	
3023.85	A	8	10.29	14.37	2-2	
3054.134	A	7	10.33	14.37	1-1	
3018.744	A	6	10.29	14.38	2-3	
3050.463	A	5	10.33	14.37	1-2	
*3419.49	A	3	10.42	14.02	2-3	c^3F-z^5G^o (11)
3421.97	A	3	10.42	14.02	2-2	
3108.85	A	3	10.39	14.36	4-5	c^3F-z^5F^o (12)
3143.36	A	2	10.45	14.38	3-3	c^3F-z^5D^o (13)
3283.30	A	2	10.85	14.61	3-4	b^1F-z^3F^o (14)
3294.50	A	4	10.85	14.60	3-3	
4003.41	A	4	10.95	14.03	4-4	b^3H-z^5G^o (15)
3464.27	B	1	10.95	14.51	4-4	b^3H-z^5D^o (16)
3367.54	A	3	10.95	14.61	4-4	b^3H-z^3F^o (17)
3396.71	A	7	10.98	14.61	6-6	b^3H-z^3H^o (18)
3347.70	A	8	10.95	14.64	5-5	
3329.89	A	7	10.95	14.65	4-4	
3373.51	A	2	10.98	14.64	6-5	
*3333.27	A	3	10.95	14.65	5-4	
3357.07	B	tr	10.95	14.62	4-3	b^3H-y^5P^o (19)
3090.772	B	1	10.95	14.94	4-3	b^3H-y^5F^o (20)
3026.985	A	6	10.98	15.05	6-5	b^3H-z^3G^o (21)
m3006.95	P	Fe III	10.95	15.05	5-4	
3006.122	A	4	10.95	15.05	4-3	
*3004.109	B	3	10.95	15.05	4-4	
4205.92	A	2	11.10	14.03	5-5	c^3G-z^5G^o (22)
4184.09	A	4	11.08	14.03	4-5	
4196.69	B	1	11.08	14.03	4-3	
*3947.10	A	4	11.08	14.21	4-4	c^3G-z^5H^o (23)
3663.98	B	tr	11.08	14.45	4-3	c^3G-z^5F^o (24)
3664.98	B	1	11.07	14.44	3-2	
3620.37	A	3	11.10	14.51	5-4	c^3G-z^5D^o (25)
3514.87	A	2	11.10	14.61	5-4	c^3G-z^3F^o (26)
3512.34	P		11.08	14.60	4-3	
3511.93	B	tr	11.07	14.59	3-2?	
3499.57	A	7	11.08	14.61	4-4	
*3501.75	A	8	11.07	14.60	3-3	
3489.07	P		11.07	14.61	3-4	
3514.39	P		11.10	14.61	5-6	c^3G-z^3H^o (27)
3474.41	P		11.08	14.64	4-5	
3448.63	P		11.07	14.65	3-4	
3489.48	P		11.10	14.64	5-5	
3458.91	B	2	11.08	14.65	4-4	
*3473.82 §	B	5	11.10	14.65	5-4	
3167.54	B	1	11.10	15.00	5-5	c^3G-y^5F^o (28)
*3120.03 §	A	3	11.10	15.05	5-5	c^3G-z^3G^o (29)
3108.78	P		11.08	15.05	4-4	
3102.55	P		11.07	15.05	3-3	
3120.84	A	2	11.10	15.05	5-4	
3110.85	A	3	11.08	15.05	4-3	
3107.950	A	8	11.08	15.05	4-5	
3100.48	P		11.07	15.05	3-4	
3070.072	A	5	11.08	15.10	4-3	c^3G-z^3D^o (30)
3035.802	A	3	11.07	15.14	3-2	
3011.060	B	1	11.07	15.17	3-2	c^3G-y^5D^o (31)

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
Fe III continued						
4323.81	B	2	11.17	14.02	3-3	d^3F-z^5G^o (32)
4057.51	B	4	11.17	14.21	4-4	d^3F-z^5H^o (33)
3773.80	B	tr	11.17	14.44	3-2	d^3F-z^5F^o (34)
*3697.45§§	B	3	11.17	14.51	3-4	d^3F-z^5D^o (35)
3845.68	8	1	11.16	14.37	2-2	
3586.12	A	9	11.17	14.61	4-4	d^3F-z^3F^o (36)
3600.93	A	10	11.17	14.60	3-3	
3603.88	A	9	11.16	14.59	2-2	
3599.49	A	3	11.17	14.60	4-3	
3611.72	A	3	11.17	14.59	3-2	
3587.53	A	3	11.17	14.61	3-4	
3593.15	A	4	11.16	14.60	2-3	
3250.27	B	1	11.17	14.97	3-4	d^3F-y^5F^o (37)
3294.85	8	1	11.17	14.92	3-2	
3302.19	B	1	11.16	14.90	2-1	
3176.00	A	10	11.17	15.05	4-5	d^3F-z^3G^o (38)
3178.03	A	10	11.17	15.05	3-4	
3174.09	A	10	11.16	15.05	2-3	
3176.86	8	2	11.17	15.05	4-4	
3180.17	P		11.17	15.05	3-3	
3179.08	B	1	11.17	15.05	4-3	
3136.43	A	10	11.17	15.10	4-3	d^3F-z^3D^o (39)
3110.052	A	10	11.17	15.14	3-2	
m3083.68	P	Fe I	11.16	15.16	2-1	
3089.649	B	1	11.17	15.16	4-3	d^3F-y^5D^o (40)
3084.09	A	6	11.17	15.17	3-2	
*3004.109	B	3	11.17	15.28	4-3	d^3F-x^5P^o (41)
3009.998	B	1	11.17	15.27	3-2	
3004.490	8	1	11.16	15.27	2-2	
4391.26	B	1	11.42	14.23	5-5	a^1H-z^5H^o (42)
4927.56	A	2	11.53	14.03	4-5	e^3F-z^5G^o (43)
4226.14	8	2	11.53	14.45	2-3	e^3F-z^5F^o (44)
m4005.04	P	Fe I	11.53	14.61	4-4	e^3F-z^3F^o (45)
4022.36	A	4	11.53	14.60	3-3	
4039.12	A	3	11.53	14.59	2-2	
4021.75	P		11.53	14.60	4-3	
4035.82	P		11.53	14.59	3-2	
4005.64	P		11.53	14.61	3-4	
4025.67	P		11.53	14.60	2-3	
3990.81	B	tr	11.53	14.62	3-3	e^3F-y^5P^o (46)
3800.43	8	1	11.53	14.78	3-2?	e^3F-z^3P^o (47)
3500.29	A	7	11.53	15.05	4-5	e^3F-z^3G^o (48)
*3501.75	A	8	11.53	15.05	3-4	
3506.93	A	5	11.53	15.05	2-3	
3501.32	P		11.53	15.05	4-4	
3504.40	A	2	11.53	15.05	3-3	
3503.96	P		11.53	15.05	4-3	
m3452.31	P	Fe I	11.53	15.10	4-3	e^3F-z^3D^o (49)
*3419.49	A	3	11.53	15.14	3-2	
3301.09	B	tr	11.53	15.27	2-2	e^3F-x^5P^o (50)
*3118.75 §	A	5	11.53	15.49	4-4	e^3F-y^3F^o (51)
3100.31	P		11.53	15.51	3-3	
3098.93	P		11.53	15.51	2-2	
4590.68	8	tr	11.54	14.23	4-5	c^1G-z^5H^o (52)
4663.78	B	1	11.54	14.19	4-3	
4025.07	A	3	11.54	14.61	4-4	c^1G-z^3F^o (53)
3515.57	A	5	11.54	15.05	4-5	c^1G-z^3G^o (54)
3516.58	P		11.54	15.05	4-4	
3519.25	B	1	11.54	15.05	4-3	
3189.74	A	3	11.54	15.41	4-3	c^1G-y^3D^o (55)
5532.65	B	1	11.98	14.21	3-4	c^1F-z^5H^o (56)
4714.53	B	1	11.98	14.60	3-3	c^1F-z^3F^o (57)
4671.25	B	tr	11.98	14.62	3-3	c^1F-y^5P^o (58)
3519.85	B	1	11.98	15.49	3-4	c^1F-y^3F^o (59)
3525.17	A	3	13.07	16.58	2-2	d^3D-x^3P^o (60)
3488.92	A	3	13.07	16.61	1-1	
3403.51	A	2	13.07	16.70	2-2	d^3D-x^3D^o (61)
3406.18	A	2	13.08	16.70	3-2	
*3410.74	A	3	13.07	16.69	2-1	
*3410.74	A	3	13.08	16.70	3-4	d^3D-y^5G^o (62)
*3357.40	A	4	13.08	16.75	3-3	d^3D-w^3D^o (63)
3370.23	A	2n	13.07	16.85	1-1	
*3239.04§§	A	2	13.08	16.89	3-2	
3263.04	A	1	13.07	16.85	1-2	d^3D-w^3F^o (64)
3238.74	A	2	13.08	16.89	3-3	
3264.22	A	2	13.07	16.85	2-2	
3096.86	A	2	13.07	17.06	2-3	d^3D-x^3G^o (65)
3099.05	A	2	13.08	17.06	3-3	

Fe III continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4570.34	A	4	13.53	16.23	2-2	$c^1D-z^1D^o$ (66)
3432.97	A	3	13.53	17.12	2-1	$c^1D-z^1P^o$ (67)
5573.3	A	4	14.11	16.33	5-6	$d^3G-y^3H^o$
5485.6	A	3	14.12	16.37	4-5	(68)
5460.8	A	3	14.12	16.38	3-4	
3976.88	A	4	14.11	17.22	5-5	$d^3G-w^3G^o$
m3953.76	P	Fe III	14.12	17.24	4-4	(69)
*3947.10	A	4	14.12	17.24	3-3	
3945.08	A	3	14.12	17.24	4-3	
*3828.44	A	2	14.12	17.34	4-3	$d^3G-y^1F^o$ (70)
m3747.40	P	Fe II	14.11	17.41	5-4	$d^3G-v^3F^o$
3793.52	A	3	14.12	17.37	4-3	(71)
3786.94	A	4	14.12	17.38	3-2	
3382.19	A	6	14.11	17.76	5-5	$d^3G-v^3G^o$
3360.84	A	6	14.12	17.79	4-4	(72)
3358.74	A	4	14.12	17.79	3-3	
3359.18	A	3	14.11	17.79	5-4	
*3357.40	A	4	14.12	17.79	4-3	
3331.62	A	5	14.11	17.82	5-4	$d^3G-t^3F^o$
3306.94	A	4	14.12	17.85	4-3	(73)
3315.80	A	3	14.12	17.84	3-2	
*3333.27	A	3	14.12	17.82	4-4	
3362.44	A	6	14.11	17.90	5-4	$d^3G-x^1G^o$ (74)
3256.54	A	2	14.12	17.91	4-3	$d^3G-x^1F^o$ (75)
3022.00	A	3	14.11	18.20	5-5	$d^3G-u^3G^o$
3045.877	A	3	14.12	18.17	4-4	(76)
3135.80	B	1	14.26	18.19	6-5	$z^5H^o-e^7D$
3087.659	B	1	14.19	18.19	3-4	(77)
3046.399	B	tr	14.38	18.43	4-3	$z^5F^o-e^7S$
3094.156	B	1	14.44	18.43	2-3?	(78)
3238.31	B	1	14.37	18.18	2-2	$z^5D^o-e^7D$ (79)
3047.119	B	1	14.38	18.43	3-3	$z^5D^o-e^7S$ (80)
3086.880	B	tr	14.43	18.43	2-3	$z^5S^o-e^7S$ (81)
4569.82	A	4	14.56	17.26	4-4	$d^1G-y^1G^o$ (82)
3753.18	A	3	14.56	17.85	4-5	$d^1G-y^1H^o$ (83)
3700.14	A	2	14.56	17.90	4-4	$d^1G-x^1G^o$ (84)
3690.60	A	4	14.56	17.91	4-3	$d^1G-x^1F^o$ (85)
3454.35	A	2	14.56	18.13	4-3	$d^1G-u^3G^o$ (86)
3218.34	A	6	14.56	18.40	4-4	$d^1G-w^1G^o$ (87)
3446.77	B	tr	14.61	18.19	4-5	$z^3F^o-e^7D$
3452.55	B	tr	14.61	18.18	4-3	(88)
3003.282	B	1	14.60	18.71	3-3	$z^3F^o-e^5D$ † (89)
3474.94	B	1	14.64	18.19	5-4	$z^3H^o-e^7D$
3487.11	B	tr	14.65	18.19	4-5	(90)
3043.067	B	2	14.65	18.71	4-4	$z^3H^o-e^5D$
3043.439	B	1	14.65	18.71	4-3	(91)
3048.714	B	4	14.66	18.71	2-3	$y^5P^o-e^5D$
3060.162	B	3	14.67	18.71	1-2	(92)
3624.25	B	1	14.78	18.18	2-1	$z^3P^o-e^7D$
3660.85	B	3	14.81	18.18	1-2	(93)
3688.71	B	tr	14.84	18.18	0-1	
3140.08	B	3	14.78	18.71	2-3	$z^3P^o-e^5D$
3168.21	B	1	14.81	18.71	1-2	(94)
*3828.44	B	2	14.97	18.19	4-5	$y^5F^o-e^7D$
3777.43	B	1	14.92	18.18	2-2	(95)
3324.72	A	3	15.00	18.71	5-4	$y^5F^o-e^5D$
3300.20	A	4	14.97	18.71	4-3	(96)
3274.95	A	3	14.94	18.71	3-2	
*3299.77 §	B	4	14.97	18.71	4-4	
3255.49	A	2	14.92	18.71	2-2	
3274.65	B	1	14.94	18.71	3-4	
3377.77	B	tr	15.05	18.71	4-4	$z^3G^o-e^5D$ (97)
4051.08	B	2	15.14	18.18	2-3	$z^3D^o-e^7D$
4053.59	B	1	15.14	18.18	2-2	(98)
3711.32	B	3	15.10	18.43	3-3	$z^3D^o-e^7S$ (99)
3458.18	B	tr	15.14	18.71	2-2	$z^3D^o-e^5D$
3484.18	B	1	15.18	18.71	1-2	(100)

Fe III continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4098.54	B	1	15.17	18.18	2-2	$y^5D^o-e^7D$ (101)
3788.91	B	tr	15.17	18.43	2-3	$y^5D^o-e^7S$ (102)
3496.29	A	4	15.18	18.71	4-4	$y^5D^o-e^5D$
*3482.36 §	B	4d	15.16	18.71	3-4	(103)
3491.16	B	2	15.17	18.71	2-3	
4237.21	B	2	15.27	18.18	2-2	$x^5P^o-e^7D$
*4238.78§§	B	5	15.27	18.18	2-1	(104)
4211.51	B	2	15.25	18.18	1-2	
3598.22	B	2	15.28	18.71	3-3	$x^5P^o-e^5D$
3572.46	B	1	15.25	18.71	1-2	(105)
4463.90	B	3	15.43	18.18	2-3?	$y^3D^o-e^7D$
4467.36	B	1	15.42	18.18	2-1?	(106)
4100.52	B	3	15.42	18.43	2-3	$y^3D^o-e^7S$ (107)
4621.39	B	3	15.51	18.18	2-3	$y^3F^o-e^7D$
4616.95	B	1	15.51	18.18	3-2	(108)
4626.53	B	1	15.51	18.18	2-1	
4624.42	B	tr	15.51	18.18	2-2	
3831.75	B	tr	15.49	18.71	4-3	$y^3F^o-e^5D$
3860.46	B	1	15.51	18.71	3-3	(109)
5436.80	B	1	15.91	18.18	2-3	$y^3P^o-e^7D$
5286.74	B	tr	15.85	18.18	0-1	(110)
5443.88	B	2	15.91	18.18	2-1	
4908.74	B	1	15.91	18.43	2-3	$y^3P^o-e^7S$ (111)
5269.15	B	4	16.37	18.71	5-4	$y^3H^o-e^5D$ (112)
5243.3	A	10	18.19	20.54	5-4	$e^7D-y^7P^o$
5282.1	A	7	18.19	20.52	4-3	(113)
5306.6	A	4	18.18	20.51	3-2	
*5235.3 §	A	5	18.19	20.54	4-4	
*5276.2 §	A	7	18.18	20.52	3-3	
5302.5	A	6	18.18	20.51	2-2	
5229.57	B	2	18.18	20.54	3-4	
5272.0	A	3	18.18	20.52	2-3	
5299.9	A	5	18.18	20.51	1-2	
5833.65	C	10	18.43	20.54	3-4	$e^7S-y^7P^o$
5891.5	C	6	18.43	20.52	3-3	(114)
5929.5	A	5	18.43	20.51	3-2	
5953.65	C	6	18.71	20.78	4-3	$e^5D-w^5P^o$
5920.0	C	7w	18.71	20.79	-2	(115)
5901.0	A	3	18.71	20.80	-1	
3007.2	A	20wn	18.71	22.81		$e^5D-w^5F^o$ (116)
6032.30	C	7	18.73	20.78	2-3	$e^5S-w^5P^o$
5999.30	C	5	18.73	20.79	2-2	(117)
5978.90	C	5n	18.73	20.80	2-1	
4164.79	A	20	20.54	23.51	4-5	$y^7P^o-f^7D$
4137.93	A	10	20.52	23.51	3-4	(118)
4120.97	A	8	20.51	23.50	2-3	
4166.86	A	9	20.54	23.51	4-4	
4139.37	A	8	20.52	23.51	3-3	
4122.06	A	8	20.51	23.50	2-2	
4168.41	A	4	20.54	23.51	4-3	
4140.51	A	6	20.52	23.50	3-2	
4122.98	A	8	20.51	23.50	2-1	
4081.19	A	7	20.54	23.57	4-3	$y^7P^o-f^7S$
4053.28	A	5	20.52	23.57	3-3	(119)
4035.54	A	4	20.51	23.57	2-3	
*3954.38	A	12	20.78	23.90	3-4	$w^5P^o-f^5D$
3968.78	A	8	20.79	23.90	2-3	(120)
3978.43	A	4	20.80	23.90	1-2	
*3954.38	A	12	20.78	23.90	3-3	
m3969.43	P	Fe I	20.79	23.90	2-2	
3979.42	A	5	20.80	23.90	1-1	
3980.14	A	3	20.80	23.90	1-0	
4310.37	A	12n	22.77	25.63	6-7	$z^7F^o-e^7G$
4304.81	A	10n	22.77	25.63	5-6	(121)
4296.88	A	10n	22.76	25.63	4-5	
4286.13	A	10n	22.75	25.63	3-4	
4273.42	A	7n	22.75	25.63	2-3	
4372.4	A	20wn	22.81	25.63		$w^5F^o-e^5G$ (122)

Strongest Unclassified Lines of Fe III (Some possibly Fe II)

6185.1	B	5	5353.78	B	5
5875.8	B	5	5340.92	B	5
5854.1	B	5	5339.92	B	7
5587.9	B	5	5291.78	B	5
5466.46	B	5	5284.85	B	5
5430.14	B	5	5273.86	B	6
5402.27	B	5	5260.25	B	10
5387.35	B	5	5237.53	B	6
5375.68	B	5	5216.99	B	8
5363.80	B	6	5177.73	B	5

Fe III continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5149.33	B	7	4143.87	B	7	
5100.706	B	10	4131.31	B	6	
*5030.75§	B	6	4113.45	B	7	
5002.02	B	8	4113.23	B	7	
4948.54	B	5	4109.95	B	5	
4596.09	B	5	4008.81	B	5	
4573.14	B	5	3964.11	B	5	
4559.09	B	6	3743.40	B	8	
4535.50	B	5	3652.65	B	6	
4271.47	B	6	3589.77	B	5	
4266.88	B	5	3367.02	B	6	
4255.20	B	5	3338.72	B	7	
4249.95	B	7	3309.40	B	6	
4243.85	B	8	3304.31	B	9	
4235.54	B	10	*3295.24§	B	6	
4222.39	B	8	3190.81	B	8	
4220.32	B	5	3151.86	B	5	
4210.87	B	10	3123.18	B	10	
4200.38	B	6	3121.08	B	10	
4200.06	B	6	3086.311	B	6	
			3044.438	B	5	
4189.10	B	7				
4179.25	B	5				
4174.27	B	10				
4154.98	B	8				
4145.74	B	5				

Co I I P 7.84 Anal A Liet B Feb 1942

4233.996	E	2	0.00	2.91	4½-5½	$a^4F-z^6F^o$
4339.13	P		0.10	2.94	3½-4½	(1)
4361.913	A	(1N)	0.17	3.00	2½-3½	
4361.031	C	(1n)	0.22	3.05	1½-2½	
4190.712	A	20	0.00	2.94	4½-4½	
4252.302	A	12	0.10	3.00	3½-3½	
4285.782	A	6	0.17	3.05	2½-2½	
4303.235	A	3	0.22	3.09	1½-1½	
*4109.706	E	(1d)	0.00	3.00	4½-3½	
4179.90	P		0.10	3.05	3½-2½	
4229.955	A	(2n)	0.17	3.09	2½-1½	
4268.032	C	(1n)	0.22	3.11	1½- ½	
4059.321	G	(1)	0.00	3.04	4½-4½	$a^4F-z^6D^o$
4088.291	A	1	0.10	3.12	3½-3½	(2)
4108.488	F	(1)	0.17	3.18	2½-2½	
3956.270	A	(2)	0.00	3.12	4½-3½	
4011.089	A	2	0.10	3.18	3½-2½	
4054.618	A	(2)	0.17	3.22	2½-1½	
4198.425	C	(2)	0.10	3.04	3½-4½	
4189.50	H	(1)	0.17	3.12	2½-3½	
4177.59	H	(1)	0.22	3.18	1½-2½	
3909.933	A	15	0.00	3.16	4½-5½	$a^4F-z^6G^o$ †
3979.518	A	10	0.10	3.20	3½-4½	(3)
4027.032	A	10	0.17	3.24	2½-3½	
4057.195	A	5	0.22	3.27	1½-2½	
3993.014	G	(1)	0.17	3.26	2½-2½	
3526.847	A	100R	0.00	3.50	4½-4½	$a^4F-z^4F^o$
3575.361	A	60r	0.10	3.55	3½-3½	(4)
3594.870	A	50R	0.17	3.61	2½-2½	
3602.079	A	40R	0.22	3.65	1½-1½	
*3474.018	F	100R	0.00	3.55	4½-3½	
3520.075	A	15	0.10	3.61	3½-2½	
3550.592	A	20r	0.17	3.65	2½-1½	
3631.390	A	20r	0.10	3.50	3½-4½	
3652.541	A	15	0.17	3.55	2½-3½	
3647.658	A	12	0.22	3.61	1½-2½	
3465.792	A	100R	0.00	3.56	4½-5½	$a^4F-z^4G^o$ †
3513.478	A	50R	0.10	3.61	3½-4½	(5)
3529.032	A	30r	0.17	3.67	2½-3½	
3533.356	A	25r	0.22	3.72	1½-2½	
3415.519	A	5	0.00	3.61	4½-4½	
3456.924	A	9	0.10	3.67	3½-3½	
3483.80	A	(6)	0.17	3.72	2½-2½	
3412.633	C	80R	0.00	3.62	4½-3½	$a^4F-z^4D^o$
3431.582	A	50r	0.10	3.70	3½-2½	(6)
3442.918	A	40r	0.17	3.76	2½-1½	
3455.237	A	25r	0.22	3.80	1½- ½	
3510.426	A	30r	0.10	3.62	3½-3½	
3502.63	A	20r	0.17	3.70	2½-2½	
3491.316	A	15	0.22	3.76	1½-1½	
3584.801	C	15	0.17	3.62	2½-3½	
3552.720	A	8	0.22	3.70	1½-2½	
3153.692	E	(1)	0.00	3.91	4½-4½	$a^4F-z^2G^o$ †
3132.218	A	4	0.10	4.04	3½-3½	(7)
3237.028	A	8	0.10	3.91	3½-4½	
3191.297	A	4	0.17	4.04	2½-3½	
3136.726	A	5	0.00	3.93	4½-3½	$a^4F-z^2F^o$
3219.150	A	5	0.10	3.93	3½-3½	(8)
3186.350	A	5	0.17	4.05	2½-2½	
3281.585	A	2	0.17	3.93	2½-3½	
3227.752	A	2	0.22	4.05	1½-2½	
3121.415	C	10	0.00	3.95	4½-3½	$a^4F-y^4D^o$
3139.947	A	12	0.10	4.03	3½-2½	(9)
3149.310	A	10	0.17	4.09	2½-1½	
*3159.662	A	10	0.22	4.13	1½- ½	
3203.026	A	4	0.10	3.95	3½-3½	
3199.322	A	4	0.17	4.03	2½-2½	
3189.752	A	5	0.22	4.09	1½-1½	
m3264.83	P	Co	0.17	3.95	2½-3½	
3241.05	A	(3)	0.22	4.03	1½-2½	

Co I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3082.614	A	12r	0.00	4.00	4½-5½	a⁴F-y⁴G°
3158.773	A	12	0.10	4.01	3½-4½	(10)
3147.060	A	15r	0.17	4.10	2½-3½	
3137.328	A	10	0.22	4.16	1½-2½	
•3079.394	A	5	0.00	4.01	4½-4½	
3089.596	A	10	0.10	4.10	3½-3½	
3098.194	A	10	0.17	4.16	2½-2½	
3013.593	A	8	0.00	4.10	4½-3½	
3042.481	A	8	0.10	4.16	3½-2½	
3044.004	A	30R	0.00	4.05	4½-4½	a⁴F-y⁴F°
3081.822	A	20r	0.10	4.13	3½-3½	(11)
3072.341	A	15r	0.17	4.19	2½-2½	
3086.777	A	15r	0.22	4.22	1½-1½	
2987.166	A	15r	0.00	4.13	4½-3½	
3017.548	A	15r	0.10	4.19	3½-2½	
3048.888	A	12r	0.17	4.22	2½-1½	
3121.566	C	10	0.10	4.05	3½-4½	
3118.249	A	5	0.17	4.13	2½-3½	
3110.821	A	5	0.22	4.19	1½-2½	
3082.199	A	5	0.10	4.13	3½-2½	a⁴F-z²D°
3034.432	A	6	0.17	4.24	2½-1½	(12)
3118.638	A	1	0.17	4.13	2½-2½	
3071.957	A	8	0.22	4.24	1½-1½	
3158.293	E	(1)	0.22	4.13	1½-2½	
2989.590	A	15r	0.00	4.13	4½-4½	a⁴F-y³G° †
3000.545	A	7	0.10	4.21	3½-3½	(13)
3064.370	A	5	0.10	4.13	3½-4½	
3054.724	C	4	0.17	4.21	2½-3½	
4966.581	A	2	0.43	2.91	4½-5½	b⁴F-z⁶F°
5071.40	P		0.51	2.94	3½-4½	(14)
5091.282	G	(1)	0.58	3.10	2½-3½	
5065.695	G	(1)	0.83	3.05	1½-2½	
4907.125	C	(2)	0.43	2.94	4½-4½	
4953.179	A	2	0.51	3.00	3½-3½	
4987.853	A	2	0.58	3.05	2½-2½	
5007.286	A	(2)	0.63	3.09	1½-1½	
4798.378	A	1	0.43	3.00	4½-3½	
4855.235	A	(1)	0.51	3.05	3½-2½	
4913.399	A	1	0.58	3.09	2½-1½	
4959.682	A	(1)	0.63	3.11	1½- ½	
4727.936	A	3	0.43	3.04	4½-4½	b⁴F-z⁶D°
4732.051	A	(5)	0.51	3.12	3½-3½	(15)
4586.730	A	1	0.43	3.12	4½-3½	
4628.908	A	(1)	0.51	3.18	3½-2½	
4677.526	F	(1)	0.58	3.22	2½-1½	
4880.25	H	(2)	0.51	3.04	3½-4½	
4857.938	G	(1)	0.58	3.12	2½-3½	
4837.948	G	(2)	0.63	3.18	1½-2½	
4020.896	A	20	0.43	3.50	4½-4½	b⁴F-z⁴F°
4056.183	A	6	0.51	3.55	3½-3½	(18)
4078.124	A	3	0.58	3.61	2½-2½	
4082.593	A	2	0.83	3.85	1½-1½	
3952.328	C	8	0.43	3.55	4½-3½	
3967.117	A	6	0.51	3.61	3½-2½	
4019.268	A	5	0.58	3.65	2½-1½	
4130.538	E	(1n)	0.51	3.50	3½-4½	
4150.439	A	2	0.58	3.55	2½-3½	
3941.728	A	20	0.43	3.56	4½-5½	b⁴F-z⁴G°
3978.850	A	10	0.51	3.81	3½-4½	(17)
3991.684	A	6	0.58	3.67	2½-3½	
3994.542	A	6	0.63	3.72	1½-2½	
•3878.631	A	20	0.43	3.61	4½-4½	
3908.287	A	10	0.51	3.87	3½-3½	
3933.918	A	8	0.58	3.72	2½-2½	
3808.102	A	10	0.43	3.87	4½-3½	
3850.945	A	4	0.51	3.72	3½-2½	
3873.120	A	60	0.43	3.82	4½-3½	b⁴F-z⁴D°
3873.953	A	40	0.51	3.70	3½-2½	(16)
3881.889	A	25	0.58	3.76	2½-1½	
3894.978	A	20	0.63	3.80	1½- ½	
3974.728	A	10	0.51	3.82	3½-3½	
3957.928	A	15	0.58	3.70	2½-2½	
3940.887	A	12	0.83	3.78	1½-1½	
•4063.174	A	(0)	0.58	3.82	2½-3½	
m4019.30	P	Co	0.63	3.70	1½-2½	
3542.976	E	2	0.43	3.91	4½-4½	b⁴F-z²G°
3496.681	C	15	0.51	4.04	3½-3½	(19)
3417.795	C	6	0.43	4.04	4½-3½	
3827.808	A	25r	0.51	3.91	3½-4½	
3564.947	A	25r	0.58	4.04	2½-3½	
3521.567	C	30r	0.43	3.93	4½-3½	b⁴F-z²F°
3490.738	A	10	0.51	4.05	3½-2½	(20)
3805.370	A	20r	0.51	3.93	3½-3½	
3558.772	A	12	0.58	4.05	2½-2½	
3877.980	F	(1)	0.58	3.93	2½-3½	
3606.307	C	3	0.63	4.05	1½-2½	
3502.278	A	100R	0.43	3.95	4½-3½	b⁴F-y⁴D°
3508.310	A	80R	0.51	4.03	3½-2½	(21)
3512.640	A	60R	0.58	4.09	2½-1½	
3523.423	A	25r	0.83	4.13	1½- ½	
3585.154	A	25R	0.51	3.95	3½-3½	
3574.987	A	25r	0.58	4.03	2½-2½	
3560.891	A	20r	0.83	4.09	1½-1½	
3856.982	A	7	0.58	3.95	2½-3½	
3824.955	A	8	0.83	4.03	1½-2½	
3453.514//	A	200R	0.43	4.00	4½-5½	b⁴F-y⁴G°
3529.816	A	80R	0.51	4.01	3½-4½	(22)
3509.843	A	50r	0.58	4.10	2½-3½	
3495.682	A	50r	0.83	4.18	1½-2½	
3449.441	C	80R	0.43	4.01	4½-4½	
3443.844	A	80R	0.51	4.10	3½-3½	
3449.170	C	60R	0.58	4.16	2½-2½	
3387.111	A	30r	0.43	4.10	4½-3½	
3385.219	A	25r	0.51	4.16	3½-2½	

Co I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3405.120	C	150R	0.43	4.05	4½-4½	b⁴F-y⁴F°
3409.177	C	60r	0.51	4.13	3½-3½	(23)
3417.154	A	50r	0.58	4.19	2½-2½	
3433.045	A	60R	0.83	4.22	1½-1½	
3334.146	A	30r	0.43	4.13	4½-3½	
3354.374	A	20	0.51	4.19	3½-2½	
•3388.163§	A	30r	0.58	4.22	2½-1½	
3483.410	A	20r	0.51	4.05	3½-4½	
•3474.018	F	100R	0.58	4.13	2½-3½	
3462.804	A	60r	0.63	4.19	1½-2½	
3409.646	C	(2)	0.51	4.13	3½-2½	b⁴F-z²D° †
3370.322	A	10	0.58	4.24	2½-1½	(24)
3474.530	A	6	0.58	4.13	2½-2½	
•3521.731	C	5	0.63	4.13	1½-2½	
3337.171	A	8	0.43	4.13	4½-4½	b⁴F-y²G°
3333.388	A	10	0.51	4.21	3½-3½	(25)
3412.339	C	80R	0.51	4.13	3½-4½	
3395.370	A	40r	0.58	4.21	2½-3½	
3127.252	A	7	0.43	4.38	4½-3½	b⁴F-y³F°
3105.929	A	3	0.51	4.48	3½-2½	(28)
3193.164	A	5	0.51	4.38	3½-3½	
•3159.662	A	10	0.58	4.48	2½-2½	
3249.995	A	6	0.58	4.38	2½-3½	
3198.660	A	5	0.63	4.48	1½-2½	
4580.139	A	4	0.92	3.61	3½-4½	a³F-z⁴G°
4699.180	A	(0)	1.04	3.67	2½-3½	(27)
4484.513	A	(2)	0.92	3.87	3½-3½	
4619.329	G	(1)	1.04	3.72	2½-2½	
4411.786	E	(1)	0.92	3.72	3½-2½	
4121.318	A	60	0.92	3.91	3½-4½	a³F-z³G°
4118.774	A	50	1.04	4.04	2½-3½	(28)
3952.917	C	25	0.92	4.04	3½-3½	
4092.386	A	25	0.92	3.93	3½-3½	a³F-z³F°
4110.532	A	25	1.04	4.05	2½-2½	(29)
3945.326	A	15	0.92	4.05	3½-2½	
4270.427	A	(1n)	1.04	3.93	2½-3½	
4066.365	A	15	0.92	3.95	3½-3½	a³F-y⁴D°
4132.155	C	4	1.04	4.03	2½-2½	(30)
3965.236	A	2	0.92	4.03	3½-2½	
3995.306	A	60	0.92	4.01	3½-4½	a³F-y⁴G°
4045.386	A	20	1.04	4.10	2½-3½	(31)
3885.275	A	6	0.92	4.10	3½-3½	
3965.011	E	1	1.04	4.16	2½-2½	
3811.065	A	5	0.92	4.16	3½-2½	
3935.964	A	30	0.92	4.05	3½-4½	a³F-y⁴F°
3997.901	A	40	1.04	4.13	2½-3½	(32)
3841.458	A	5	0.92	4.13	3½-3½	
3922.755	A	7	1.04	4.19	2½-2½	
3884.601	A	10	1.04	4.22	2½-1½	
3842.047	A	30	0.92	4.13	3½-2½	a³F-z²D°
3861.164	A	20	1.04	4.24	2½-1½	(33)
3998.554	E	(1n)	1.04	4.13	2½-2½	
3845.468	A	60	0.92	4.13	3½-4½	a³F-y³G°
3894.073	A	60	1.04	4.21	2½-3½	(34)
3745.491	A	25	0.92	4.21	3½-3½	
3589.370	A	80R	0.92	4.38	3½-3½	a³F-y³F°
3587.186	A	70R	1.04	4.48	2½-2½	(35)
3460.719	C	4	0.92	4.48	3½-2½	
3704.060	A	25	1.04	4.38	2½-3½	
3489.399	A	60r	0.92	4.46	3½-2½	a³F-y³D°
3518.340	A	50R	1.04	4.55	2½-1½	(38)
3618.010	A	4	1.04	4.46	2½-2½	
8450.230	A	80	1.70	3.62	2½-3½	a⁴P-z⁴D°
8282.836	A	40	1.73	3.70	1½-2½	(37)
6230.968	C	10	1.78	3.76	½-1½	
8169.005	A	10	1.70	3.70	2½-2½	
6093.144	A	10	1.73	3.76	1½-1½	
8118.994	A	8	1.78	3.80	½- ½	
6005.030	A	(3)	1.70	3.78	2½-1½	
5984.092	A	3	1.73	3.80	1½- ½	
5530.780	A	10	1.70	3.93	2½-3½	a⁴P-z³F°
•5285.523	F	(1)	1.70	4.05	2½-2½	(38)
5483.354	A	40	1.70	3.95	2½-3½	a⁴P-y⁴D°
5369.591	A	20	1.73	4.03	1½-2½	(39)
5331.458	A	15	1.78	4.09	½-1½	
5301.042	A	15	1.70	4.03	2½-2½	
5230.210	A	25	1.73	4.09	1½-1½	
5247.921	A	15	1.78	4.13	½- ½	
5165.158	A	3	1.70	4.09	2½-1½	
5149.796	A	4	1.73	4.13	1½- ½	
3728.853	A	5	1.70	5.01	2½-1½	a⁴P-z⁴S°
3760.401	A	4	1.73	5.01	1½-1½	(40)
3812.470	C	4	1.76	5.01	½-1½	
3548.438	A	7	1.70	5.18	2½-2½	a⁴P-z⁴P°
3577.260	A	3	1.73	5.18	1½-1½	(41)
3628.020	A	2	1.76	5.18	½- ½	
3546.707	A	6	1.70	5.18	2½-1½	
3578.903	C	6	1.73	5.18	1½- ½	
3579.029	C	8	1.73	5.18	1½-2½	
3824.337	A	5	1.76	5.18	½-1½	
3377.060	A	5	1.70	5.38	2½-3½	a⁴P-w⁴D°
3422.900	A	4	1.73	5.34	1½-2½	(42)
3463.499	C	3	1.78	5.34	½-1½	
3394.916	C	2	1.70	5.34	2½-2½	
3430.474	A	5	1.73	5.34	1½-1½	
m3442.98	P	Co	1.78	5.38	½- ½	
3400.471	A	1	1.73	5.36	1½- ½	

Co I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3326.564	C	2	1.70	5.41	2½-3½	a⁴P-w⁴F°
•3314.073	A	8	1.73	5.46	1½-2½	(43)
3287.827	C	(2)	1.70	5.46	2½-2½	
3275.66	A	(1)	1.73	5.50	1½-1½	
3359.284	A	6	1.70	5.38	2½-3½	a⁴P-x³F°
3401.617	C	2	1.73	5.36	1½-2½	(44)
3373.969	A	4	1.70	5.36	2½-2½	
3318.398	A	4	1.70	5.42	2½-2½	a⁴P-x³D°
3346.310	C	1	1.73	5.42	1½-1½	(45)
3319.561	C	(2)	1.70	5.42	2½-1½	
3345.146	E	(1)	1.73	5.42	1½-2½	
3387.47	A	1	1.78	5.42	½-1½	
3286.545	C	1	1.73	5.49	1½- ½	a⁴P-z³S°
•3326.27	A	(1)	1.78	5.49	½- ½	(46)
3258.035	A	4	1.70	5.49	2½-2½	a⁴P-y⁴P°
3284.719	E	(3)	1.73	5.51	1½-1½	(47)
3282.232	C	1	1.78	5.54	½- ½	
3239.258	E	(1)	1.70	5.51	2½-1½	
3243.579	C	2	1.73	5.54	1½- ½	
3283.777	C	3	1.73	5.49	1½-2½	
3303.881	A	4	1.78	5.51	½-1½	
3103.983	C	5	1.70	5.68	2½-2½	a⁴P-x⁴P°
3136.999	C	1	1.73	5.67	1½-1½	(48)
3113.473	A	6	1.70	5.67	2½-1½	
3131.829	A	1	1.73	5.67	1½- ½	
3173.140	A	1	1.78	5.67	½-1½	
3107.044	C	3	1.70	5.68	2½-3½	a⁴P-v⁴D°
3095.716	A	3	1.73	5.72	1½-2½	(49)
3137.755	A	4	1.78	5.71	½-1½	
3102.405	A	4	1.73	5.71	1½-1½	
3114.118	A	(10)N1?	1.78	5.74	½- ½	
•3079.394	A	5	1.70	5.71	2½-1½	
3040.812	A	1	1.70	5.76	2½-2½	a⁴P-v²D°
3109.506	A	4	1.73	5.70	1½-1½	(50)
3088.393	A	4	1.70	5.70	2½-1½	
3063.25	A	(1)	1.73	5.76	1½-2½	
3145.022	A	3	1.78	5.70	½-1½	
3050.932	C	(3)	1.70	5.75	2½-1½	a⁴P-y⁴S° †
3073.520	A	3	1.73	5.75	1½-1½	(51)
3039.563	A	3	1.70	5.76	2½-1½	a⁴P-y³P°
•3024.400	A	(1)	1.73	5.81	1½- ½	(52)
3061.983	E	(1)	1.73	5.76	1½-1½	
3096.402	A	3	1.78	5.78	½-1½	
7354.579	A	3	1.87	3.55	2½-3½	b⁴P-z⁴F°
7437.16	C	1	1.95	3.61	1½-2½	(53)
7478.77	C	(1)	2.00	3.65	½-1½	
7124.47	C	1	1.87	3.61	2½-2½	
7250.12	C	1	1.95	3.65	1½-1½	
7084.974	A	100	1.87	3.62	2½-3½	b⁴P-z⁴D°
7052.872	A	60	1.95	3.70	1½-2½	(54)
7018.602	A	35	2.00	3.76	½-1½	
6771.040	A	50	1.87	3.70	2½-2½	
6814.950	A	40	1.95	3.76	1½-1½	
6872.32	A	40	2.00	3.80	½- ½	
6551.466	A	3	1.87	3.76	2½-1½	
6678.818	A	5	1.95	3.80	1½- ½	
5935.391	A	6	1.87	3.95	2½-3½	b⁴P-y⁴D°
5922.365	C	(1n)	1.95	4.03	1½-2½	(55)
5469.305	C	4	1.87	4.13	2½-2½	b⁴P-z³D°
5381.105	C	5	1.95	4.24	1½-1½	(56)
•5651.734	C	(1n)	1.95	4.13	1½-2½	
4781.432	A	3	1.87	4.46	2½-2½	b⁴P-y³D°
4737.769	A	2	1.95	4.55	1½-1½	(57)
4608.908	A	(0)	1.87	4.55	2½-1½	
4920.272	A	1	1.95	4.46	1½-2½	
4834.359	G	—	2.00	4.55	½-1½	
4086.300	A	15	1.87	4.89	2½-3½	b⁴P-x⁴D°
4068.541	A	8	1.95	4.98	1½-2½	(58)
4058.600	A	6	2.00	5.04	½-1½	
3973.144	A	10	1.87	4.98	2½-2½	
3990.299	A	6	1.95	5.04	1½-1½	
4013.942	A	7	2.00	5.07	½- ½	
3898.485	A	4	1.87	5.04	2½-1½	
3947.125	A	3	1.95	5.07	1½- ½	
3930.076	G	(1)	1.87	5.01	2½-1½	b⁴P-z⁴S°
4023.399	A	4	1.95	5.01	1½-1½	(59)
4092.848	C	3	2.00	5.01	½-1½	
3856.796	A	4	1.87	5.07	2½-2½	b⁴P-2°
3946.633	A	2	1.95	5.07	1½-2½	(60)
3568.436	C	2	1.87	5.33	2½-2½	b⁴P-x⁴G°
3645.190	A	5	1.95	5.33	1½-2½	(61)
3732.390	A	20	1.87	5.18	2½-2½	b⁴P-z⁴P°
3814.457	A	5	1.95	5.18	1½-1½	(62)
3878.750	A	(4)	2.00	5.18	½- ½	
3730.476	A	20	1.87	5.18	2½-1½	
3818.318	A	15	1.95	5.18	1½- ½	
3816.458	A	15	1.95	5.18	1½-2½	
•3876.831	A	20	2.00	5.18	½-1½	
3525.872	C	3	1.87	5.37	2½-1½	b⁴P-z³P° †
3854.441	A	5	1.95	5.32	1½- ½	(63)
3600.803	A	3	1.95	5.37	1½-1½	
3711.846	A	3	2.00	5.32	½- ½	

Co I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3543.256	A	15	1.87	5.36	2½-3½	$b^4P-w^4D^o$
3639.443	A	10	1.95	5.34	1½-2½	(64)
3693.364	C	2	2.00	5.34	½-1½	
3562.912	A	7	1.87	5.34	2½-2½	
3636.713	A	6	1.95	5.34	1½-1½	
3670.041	A	3	2.00	5.36	½- ½	
3560.306	C	5	1.87	5.34	2½-1½	
3614.10	A	(0)	1.95	5.36	1½- ½	
3487.712	A	8	1.87	5.41	2½-3½	$b^4P-w^4F^o$ †
3516.675	C	1	1.95	5.46	1½-2½	(65)
3523.701	C	7	1.87	5.38	2½-3½	$b^4P-x^2F^o$
3615.387	A	6	1.95	5.36	1½-2½	(66)
3478.744	C	7	1.87	5.42	2½-3½	$b^4P-x^2D^o$
3552.989	A	8	1.95	5.42	1½-1½	(67)
3480.012	A	6	1.87	5.42	2½-1½	
3551.666	C	2	1.95	5.42	1½-2½	
3607.04	A	(0)	2.00	5.42	½-1½	
3485.700	A	4	1.95	5.49	1½- ½	$b^4P-z^2S^o$
3537.707	A	1	2.00	5.49	½- ½	(68)
3243.840	A	8	1.87	5.68	2½-2½	$b^4P-x^4P^o$
3317.93	A	(0)	1.95	5.67	1½-1½	(69)
3359.066	A	3	2.00	5.67	½- ½	
3254.202	A	12	1.87	5.67	2½-1½	
3312.148	C	7	1.95	5.67	1½- ½	
3307.156	A	7	1.95	5.68	1½-2½	
3365.014	C	2	2.00	5.67	½-1½	
3247.170	A	8	1.87	5.68	2½-3½	$b^4P-v^4D^o$
3271.778	A	8	1.95	5.72	1½-2½	(70)
3325.240	A	10	2.00	5.71	½-1½	
3209.80	A	(1)	1.87	5.72	2½-2½	
3279.254	A	5	1.95	5.71	1½-1½	
3298.680	A	6	2.00	5.74	½- ½	
3216.996	C	1	1.87	5.71	2½-1½	
3253.416	E	1	1.95	5.74	1½- ½	
3174.905	A	4	1.87	5.76	2½-2½	$b^4P-v^2D^o$
3287.192	A	7	1.95	5.70	1½-1½	(71)
3224.632	A	4	1.87	5.70	2½-1½	
*3235.532	A	6	1.95	5.76	1½-2½	
m3333.41	P	Co	2.00	5.70	½-1½	
3173.56	A	(1)	1.87	5.76	2½-1½	$b^4P-y^2P^o$
3192.220	A	3	1.95	5.81	1½- ½	(72)
3234.119	C	1	1.95	5.76	1½-1½	
3235.783	C	(2)	2.00	5.81	½- ½	
3278.842	A	6	2.00	5.76	½-1½	
3154.794	A	10	1.87	5.79	2½-3½	$b^4P-u^4D^o$
3161.652	A	5	1.95	5.85	1½-2½	(73)
3182.118	A	7	2.00	5.88	½-1½	
3103.735	A	5	1.87	5.85	2½-2½	
m3139.98	P	Co	1.95	5.88	1½-1½	
3152.707	A	6	2.00	5.91	½- ½	
3082.844	C	2	1.87	5.88	2½-1½	
3111.339	C	2	1.95	5.91	1½- ½	
3120.10	A	(3)	1.87	5.83	2½-3½	$b^4P-w^2F^o$
3188.377	A	7	1.95	5.82	1½-2½	(74)
3129.481	A	3	1.87	5.82	2½-2½	
3099.667	A	2	1.95	5.93	1½- ½	$b^4P-x^2S^o$
3140.715	A	2	2.00	5.93	½- ½	(75)
3015.686	A	3	1.87	5.97	2½-1½	$b^4P-x^2P^o$ †
3086.83 ?	A	(1?)	1.95	5.93	1½- ½	(76)
3026.373	A	6	1.87	5.95	2½-3½	$b^4P-t^4D^o$
3060.048	A	5	1.95	5.98	1½-2½	(77)
3090.251	A	4	2.00	5.99	½-1½	
3005.766	A	3	1.87	5.98	2½-2½	
3050.496	A	3	1.95	5.99	1½-1½	
3087.806	A	3	2.00	6.00	½- ½	
2996.549	A	1	1.87	5.99	2½-1½	
3048.108	A	2	1.95	6.00	1½- ½	
3017.254	A	3	1.87	5.96	2½-3½	$b^4P-v^2F^o$
m3044.04	P	Co	1.95	6.00	1½-2½	(78)
7809.24	C	(1)	2.03	3.61	4½-4½	$a^2G-z^4G^o$
*7996.80	C	(1)	2.13	3.67	3½-3½	(79)
6563.403	A	40	2.03	3.91	4½-4½	$a^2G-z^2G^o$
m8450.09	P	Co	2.13	4.04	3½-3½	(80)
6146.38	D	(3)	2.03	4.04	4½-3½	
6910.84	C	(2)	2.13	3.91	3½-4½	
6490.344	A	6	2.03	3.93	4½-3½	$a^2G-z^2F^o$
6429.913	A	4	2.13	4.05	3½-2½	(81)
6829.92	D	(1)	2.13	3.93	3½-3½	
5890.487	A	12	2.03	4.13	4½-4½	$a^2G-y^2G^o$
5915.551	A	10	2.13	4.21	3½-3½	(82)
5659.121	A	3	2.03	4.21	4½-3½	
6168.86	D	(1)	2.13	4.13	3½-4½	
5266.508	A	25	2.03	4.38	4½-3½	$a^2G-y^2F^o$
5235.188	A	15	2.13	4.48	3½-2½	(83)
3712.177	A	8	2.03	5.38	4½-3½	$a^2G-w^4D^o$
3843.692	A	4	2.13	5.34	3½-2½	(84)
3651.254	A	4	2.03	5.41	4½-3½	$a^2G-w^4F^o$ †
3707.01	G	—	2.13	5.46	3½-2½	(85)
3690.715	A	7	2.03	5.38	4½-3½	$a^2G-x^2F^o$
3816.878	A	5	2.13	5.38	3½-2½	(88)
3438.713	C	4	2.03	5.62	4½-5½	$a^2G-z^2H^o$
3588.082	E	3	2.13	5.57	3½-4½	(87)
3381.498	C	4	2.03	5.68	4½-4½	$a^2G-x^2G^o$
3503.717	C	3	2.13	5.85	3½-3½	(88)

Co I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
7987.36	A	5	2.07	3.62	2½-3½	$a^2D-z^4D^o$
7417.38	A	10	2.03	3.70	1½-2½	(89)
7590.57	C	2	2.07	3.70	2½-2½	
7154.688	A	8	2.03	3.76	1½-1½	
7315.73	C	(3)	2.07	3.76	2½-1½	
7004.81	C	3	2.03	3.80	1½- ½	
5991.890	A	20	2.07	4.13	2½-2½	$a^2D-z^2D^o$
5590.744	A	10	2.03	4.24	1½-1½	(90)
5688.593	C	2	2.07	4.24	2½-1½	
5883.421	A	(3)	2.03	4.13	1½-2½	
m5354.01	P	Co	2.07	4.38	2½-3½	$a^2D-y^2F^o$
5034.06	H	(3)	2.03	4.48	1½-2½	(91)
5113.232	C	6	2.07	4.48	2½-2½	
5176.085	A	20	2.07	4.48	2½-2½	$a^2D-y^2D^o$
4899.520	A	2	2.03	4.55	1½-1½	(92)
4974.47	G	(1)	2.07	4.55	2½-1½	
5094.955	A	8	2.03	4.46	1½-2½	
4371.130	A	5	2.07	4.89	2½-3½	$a^2D-x^4D^o$ †
4187.246	A	4	2.03	4.98	1½-2½	(93)
4192.856	A	(2N)	2.07	5.01	2½-1½	$a^2D-z^4S^o$
4139.452	A	3	2.03	5.01	1½-1½	(94)
3735.928	C	12	2.07	5.37	2½-1½	$a^2D-z^2P^o$
3749.930	A	9	2.03	5.38	1½- ½	(95)
3693.476	A	8	2.03	5.37	1½-1½	
3755.447	A	10	2.07	5.36	2½-3½	$a^2D-w^4D^o$
3734.139	A	7	2.03	5.34	1½-2½	(96)
3777.543	A	6	2.07	5.34	2½-2½	
3731.368	A	2	2.03	5.34	1½-1½	
3774.599	A	8	2.07	5.34	2½-1½	
3707.465	A	6	2.03	5.36	1½- ½	
3693.106	A	8	2.07	5.41	2½-3½	$a^2D-w^2F^o$
3605.015	C	5	2.03	5.46	1½-2½	(97)
3645.440	E	3	2.07	5.46	2½-2½	
3559.597	E	1	2.03	5.50	1½-1½	
3733.483	A	12	2.07	5.38	2½-3½	$a^2D-x^2F^o$
3708.823	A	12	2.03	5.36	1½-2½	(98)
3751.625	A	5	2.07	5.36	2½-2½	
3683.047	A	20	2.07	5.42	2½-2½	$a^2D-x^2D^o$
3643.181	A	9	2.03	5.42	1½-1½	(99)
3684.479	C	10	2.07	5.42	2½-1½	
3641.784	A	6	2.03	5.42	1½-2½	
3585.808	C	4	2.07	5.51	2½-1½	$a^2D-y^4P^o$ †
*3521.731	C	5	2.03	5.54	1½- ½	(100)
3458.028	C	3	2.07	5.64	2½-2½	$a^2D-w^2D^o$
m3334.12	P	Co	2.03	5.73	1½-1½	(101)
3368.67	G	(1)	2.07	5.73	2½-1½	
3421.628	A	3	2.03	5.64	1½-2½	
3420.790	A	7	2.07	5.68	2½-2½	$a^2D-x^4P^o$
3396.457	C	1	2.03	5.67	1½-1½	(102)
3432.318	C	3	2.07	5.67	2½-1½	
3390.396	A	5	2.03	5.67	1½- ½	
3424.500	A	10	2.07	5.68	2½-3½	$a^2D-v^4D^o$ †
3348.112	A	8	2.03	5.72	1½-2½	(103)
3355.940	A	2	2.03	5.71	1½-1½	
3356.464	A	6	2.07	5.75	2½-1½	$a^2D-y^4S^o$
*3322.198	A	8	2.03	5.75	1½-1½	(104)
3342.734	C	8	2.07	5.76	2½-1½	$a^2D-y^2P^o$
3264.842	A	5	2.03	5.81	1½- ½	(105)
3308.888	E	(1)	2.03	5.76	1½-1½	
3321.912	C	2	2.07	5.79	2½-3½	$a^2D-u^4D^o$
3232.874	A	(9)	2.03	5.85	1½-2½	(106)
3265.352	A	3	2.07	5.85	2½-2½	
3210.219	A	5	2.03	5.88	1½-1½	
3180.290	A	2	2.03	5.91	1½- ½	
3283.466	A	9	2.07	5.83	2½-3½	$a^2D-w^2F^o$
3260.814	A	9	2.03	5.82	1½-2½	(107)
3293.861	C	2	2.07	5.82	2½-2½	
3168.060	C	8	2.07	5.97	2½-1½	$a^2D-x^2P^o$
3154.878	C	5	2.03	5.95	1½- ½	(108)
3137.454	E	3	2.03	5.97	1½-1½	
3169.766	A	9	2.07	5.96	2½-3½	$a^2D-v^2F^o$
3110.021	C	5	2.03	6.00	1½-2½	(109)
8946.31	C	(2)	2.27	4.05	1½-2½	$a^2P-z^2F^o$ (110)
6632.438	A	15	2.27	4.13	1½-2½	$a^2P-z^2D^o$ †
8417.324	C	15	2.32	4.24	½-1½	(111)
5647.234	A	12	2.27	4.46	1½-2½	$a^2P-y^2D^o$
5523.310	A	8	2.32	4.55	½-1½	(112)
5408.119	C	2	2.27	4.55	1½-1½	
3915.503	A	(2)	2.27	5.42	1½-2½	$a^2P-x^2D^o$
3977.184	A	3	2.32	5.42	½-1½	(113)
3917.115	A	8	2.27	5.42	1½-1½	
3835.497	C	(2)	2.27	5.49	1½- ½	$a^2P-z^2S^o$
3893.067	E	2	2.32	5.49	½- ½	(114)
3682.158	A	12	2.27	5.64	1½-2½	$a^2P-w^2D^o$
3811.701	A	10	2.32	5.73	½-1½	(115)
3582.097	A	6	2.27	5.73	1½-1½	
3820.422	A	5	2.27	5.68	1½-2½	$a^2P-x^4P^o$
3684.960	A	2	2.32	5.87	½-1½	(118)
3833.340	A	2	2.27	5.87	1½-1½	
3677.835	G	(1)	2.32	5.67	½- ½	

Co I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3578.076	A	6	2.27	5.72	1½-2½	$a^2P-v^4D^o$
3637.319	A	4	2.32	5.71	½-1½	(117)
3556.120	G	(1)	2.27	5.74	1½- ½	
3534.769	A	4	2.27	5.76	1½-2½	$a^2P-v^2D^o$
3647.081	A	5	2.32	5.70	½-1½	(118)
3596.510	A	5	2.27	5.70	1½-1½	
3421.029	E	(1)	2.27	5.88	1½-1½	$a^2P-u^4D^o$
3387.061	C	1	2.27	5.91	1½- ½	(119)
3478.555	C	8	2.27	5.82	1½-2½	$a^2P-w^2F^o$ (120)
3378.736	A	5	2.27	5.92	1½- ½	$a^2P-y^2S^o$
3423.35	A	(1)	2.32	5.92	½- ½	(121)
3373.226	A	7	2.27	5.93	1½- ½	$a^2P-x^2S^o$
3417.673	C	5	2.32	5.93	½- ½	(122)
3338.519	C	1	2.27	5.97	1½-1½	$a^2P-x^2P^o$
3402.064	C	4	2.32	5.95	½- ½	(123)
*3358.003	A	3	2.27	5.95	1½- ½	
3382.071	E	2	2.32	5.97	½-1½	
3263.213	A	4	2.27	6.05	1½-1½	$a^2P-w^2P^o$
3226.986	A	4	2.32	6.14	½- ½	(124)
3072.664	C	(1)	2.27	6.29	1½-1½	$a^2P-v^2P^o$
3107.540	A	1	2.32	6.29	½- ½	(125)
7712.661	A	6	2.53	4.13	1½-2½	$b^2P-z^2D^o$
7610.24	C	2	2.62	4.24	½-1½	(126)
7217.34	C	(2)	2.53	4.24	1½-1½	
4268.446	A	2	2.53	5.42	1½-2½	$b^2P-x^2D^o$
4404.932	A	3	2.62	5.42	½-1½	(127)
3969.116	A	8	2.53	5.64	1½-2½	$b^2P-w^2D^o$
3960.997	A	6	2.62	5.73	½-1½	(128)
3851.848	A	2	2.53	5.73	1½-1½	
3870.534	A	4	2.53	5.72	1½-2½	$b^2P-v^4D^o$
3991.831	C	(2)	2.62	5.71	½-1½	(129)
3819.908	A	4	2.53	5.76	1½-2½	$b^2P-v^2D^o$
4003.596	A	2	2.62	5.70	½-1½	(130)
3892.118	A	3	2.53	5.70	1½-1½	
3817.940	A	(4)	2.53	5.76	1½-1½	$b^2P-y^2P^o$
3863.607	C	2	2.62	5.81	½- ½	(131)
3759.684	A	3	2.53	5.81	1½- ½	
3925.151	A	3	2.62	5.76	½-1½	
3754.346	A	4	2.53	5.82	1½-2½	$b^2P-w^2F^o$ (132)
3631.948	C	2	2.53	5.93	1½- ½	$b^2P-x^2S^o$
3728.840	A	3	2.62	5.93	½- ½	(133)
3591.746	A	4	2.53	5.97	1½-1½	$b^2P-x^2P^o$
3614.34	A	(1)	2.53	5.95	1½- ½	(134)
3686.477	A	2	2.62	5.97	½-1½	
3504.728	A	5	2.53	6.05	1½-1½	$b^2P-w^2P^o$
3502.998	E	(2d)	2.62	6.14	½- ½	(135)
3417.353	E	(1d)	2.53	6.14	1½- ½	
m3594.87	P	Co	2.62	6.05	½-1½	
3496.070	C	3	2.69	6.22	5½-5½	$a^2H-y^2H^o$
3604.469	A	4	2.77	6.20	4½-4½	(136)
3469.683	E	(2n)	2.69	6.25	5½-4½	$a^2H-w^2G^o$
3553.161	C	2	2.77	6.25	4½-3½	(137)
3174.140	A	2	2.69	6.58	5½-4½	$a^2H-v^2G^o$
*3235.532	A	6	2.77	6.59	4½-3½	(138)
3245.750	A	(1)	2.77	6.58	4½-4½	
7388.689	A	5	2.71	4.38	2½-3½	$b^2D-y^2F^o$
7586.72	C	(4)	2.86	4.48	1½-2½	(139)
6937.81	C	4	2.71	4.48	2½-2½	
7054.042	A	10	2.71	4.46	2½-2½	$b^2D-y^2D^o$ †
7285.28	C	4	2.86	4.55	1½-1½	(140)
4824.561	A	(0)	2.71	5.37	2½-1½	$b^2D-z^2P^o$
5004.187	G	(1)	2.86	5.32	1½- ½	(141)
4904.172	A	1	2.86	5.37	1½-1½	
4543.810	A	6	2.71	5.42	2½-2½	$b^2D-x^2D^o$
4815.900	A	1	2.86	5.42	1½-1½	(142)
4545.985	A	1	2.71	5.42	2½-1½	
m4813.45	P	Co	2.86	5.42	1½-2½	
4375.540	A	2	2.86	5.68	4½-4½	$b^2G-x^2G^o$
4431.608	A	3	2.86	5.85	3½-3½	(143)
4158.420	A	4	2.86	5.83	4½-3½	$b^2G-w^2F^o$
4179.226	A	2	2.86	5.82	3½-2½	(144)
3676.552	A	12	2.86	6.22	4½-5½	$b^2G-y^2H^o$
3702.237	A	12	2.86	6.20	3½-4½	(145)
3699.017	C	2n	2.88	6.20	4½-4½	
3649.329	A	8	2.88	6.24	4½-3½	$b^2G-u^2F^o$
3634.713	A	7	2.88	6.26	3½-2½	(146)
3832.839	A	7	2.86	6.26	4½-5½	$b^2G-x^2H^o$ †
3609.752	A	4	2.86	6.28	3½-4½	(147)
3341.341	A	5	2.86	6.56	4½-3½	$b^2G-s^2F^o$
3339.15	A	(4)	2.86	6.56	3½-2½	(148)
*3322.198	A	8	2.86	6.58	4½-4½	$b^2G-v^2G^o$ †
*3314.073	A	8	2.86	6.59	3½-3½	(149)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Co I continued						
4530.949	A	30	2.91	5.64	5½-5½	$z^6F^o-e^6F$ (150)
4469.547	A	15	2.94	5.71	4½-4½	
4466.881	A	10	3.00	5.77	3½-3½	
4471.550	A	5	3.05	5.81	2½-2½	
4478.319	A	4	3.09	5.85	1½-1½	
4483.918	A	3	3.11	5.87	½- ½	
4421.337	A	4	2.91	5.71	5½-4½	
4374.918	A	3	2.94	5.77	4½-3½	
4391.568	A	4	3.00	5.81	3½-2½	
4417.398	A	5	3.05	5.85	2½-1½	
4445.711	A	4	3.09	5.87	1½- ½	
4581.596	A	20	2.94	5.64	4½-5½	
4565.578	A	15	3.00	5.71	3½-4½	
4549.658	A	10	3.05	5.77	2½-3½	
4533.985	A	7	3.09	5.81	1½-2½	
4517.094	A	4	3.11	5.85	½-1½	
3343.530	E	(1)	2.91	6.61	5½-5½	$z^6F^o-f^4G$ (151)
3299.11	A	(0)	2.94	6.69	4½-4½	
3272.76	A	(1)	2.92	6.89	5½-4½	
3371.015	C	(2)	2.94	6.61	4½-5½	
3351.138	A	1	3.00	6.69	3½-4½	
3356.842	A	3	3.05	6.73	2½-3½	
3318.60	A	(1)	3.09	6.81	1½-2½	
3326.991	C	8	2.91	6.62	5½-5½	$z^6F^o-f^6F$ (152)
3277.662	A	3	2.94	6.71	4½-4½	
3270.198	C	2	3.00	6.78	3½-3½	
3272.405	C	(2)	3.05	6.82	2½-2½	
3251.856	A	(2)	2.91	6.71	5½-4½	
3220.62	A	(4)	2.94	6.78	4½-3½	
3229.36	A	(3)	3.00	6.82	3½-2½	
3354.213	C	4	2.94	6.62	4½-5½	
3329.013	A	2	3.00	6.71	3½-4½	
3314.345	C	2	3.05	8.78	2½-3½	
3305.730	A	2	3.09	6.82	1½-2½	
3294.536	C	2	3.11	6.86	½-1½	
3319.822	A	4	2.91	6.63	5½-4½	$z^6F^o-e^6D$ (153)
3278.105	A	2	2.94	6.71	4½-3½	
3284.82	P	Co	3.00	6.78	3½-2½	
3259.20	A	(6)	3.05	6.84	2½-1½	
3346.932	A	8	2.94	6.83	4½-4½	
3329.466	A	5	3.00	6.71	3½-3½	
3308.814	A	4	3.05	6.78	2½-2½	
3292.22	A	(1)	3.09	6.84	1½-1½	
3375.238	E	(1)	3.05	6.71	2½-3½	
3313.116	A	2	3.11	6.84	½-1½	
3319.478	C	8	2.91	6.63	5½-6½	$z^6F^o-e^6G$ (154)
3276.483	A	4	2.94	6.71	4½-5½	
3293.210	A	3	3.00	6.75	3½-4½	
3304.119	A	3	3.05	6.79	2½-3½	
3287.575	A	2	3.09	6.85	1½-2½	
3315.035	C	3	3.11	6.85	½-1½	
3250.51	A	(5w)	2.91	6.71	5½-5½	
3260.286	C	(2)	3.00	6.79	3½-3½	
3254.63	A	(9)	3.05	6.85	2½-2½	
3294.098	C	(2)	3.09	6.85	1½-1½	
3211.01	A	(4)	2.94	6.79	4½-3½	
3339.780	A	8	2.94	6.64	4½-3½	$z^6F^o-e^6P$ (155)
3319.156	C	4	3.00	6.72	3½-2½	
3308.482	A	4	3.05	6.78	2½-1½	
4749.68	A	10	3.04	5.64	4½-5½	$z^6D^o-e^6F$ (156)
4771.108	C	8	3.12	5.71	3½-4½	
4788.072	A	5	3.18	5.77	2½-3½	
4754.358	A	3	3.22	5.81	1½-2½	
4734.828	A	2	3.24	5.85	½-1½	
4629.359	A	15	3.04	5.71	4½-4½	
4663.403	A	12	3.12	5.77	3½-3½	
4682.361	A	9	3.18	5.81	2½-2½	
4693.190	A	6	3.22	5.85	1½-1½	
4698.389	A	3	3.24	5.87	½- ½	
4527.919	A	2	3.04	5.77	4½-3½	
4581.380	F	(1)	3.12	5.81	3½-2½	
4623.020	A	(2N)	3.18	5.85	2½-1½	
4657.390	A	(1)	3.22	5.67	1½- ½	
4361.553	A	5†	3.04	6.71	4½-5½	$z^6D^o-e^6G$† (157)
4398.811	A	3	3.12	6.75	3½-4½	
4401.913	C	(2n)	3.22	6.85	1½-2½	
4867.870	A	25	3.10	5.64	6½-5½	$z^6G^o-e^6F$† (158)
4840.253	A	25	3.16	5.71	5½-4½	
4813.476	A	20	3.20	5.77	4½-3½	
4792.655	A	15	3.24	5.81	3½-2½	
4779.979	A	10	3.27	5.65	2½-1½	
4778.311	A	6	3.26	5.67	1½- ½	
4971.935	A	2	3.16	5.64	5½-5½	
4936.290	A	2	3.20	5.71	4½-4½	
4882.704	A	2	3.24	5.77	3½-3½	
4843.454	A	3	3.27	5.81	2½-2½	
4813.968	A	2	3.28	5.85	1½-1½	
4564.115	A	4	3.16	6.82	5½-6½	$z^6G^o-f^4H$† (159)
4522.856	E	4	3.20	6.71	4½-5½	
4491.987	C	3	3.24	6.77	3½-4½	
4468.973	A	3	3.27	6.82	2½-3½	
4505.133	A	3	3.10	6.82	6½-5½	$z^6G^o-f^6F$† (160)
4472.707	C	(1n)	3.16	6.71	5½-4½	
4452.18	A	(2)	3.20	6.78	4½-3½	
4496.794	C	8	3.10	6.83	6½-6½	$z^6G^o-e^6G$† (161)
4471.382	A	7	3.18	6.71	5½-5½	
4477.838	A	4	3.20	6.75	4½-4½	
4478.360	C	5n	3.24	8.79	3½-3½	
4447.381	C	3	3.27	6.65	2½-2½	
4472.196	E	1	3.28	8.85	1½-1½	
Co I continued						
3485.368	A	15	3.10	6.64	6½-7½	$z^6G^o-e^6H$† (162)
3461.173	A	15	3.16	6.72	5½-6½	
3446.088	C	12	3.20	6.78	4½-5½	
3437.680	A	6n	3.24	8.83	3½-4½	
3448.358	C	4	3.24	6.82	3½-3½	z^6G^o-3 (163)
6908.08	C	(5)	3.39	5.18	2½-2½	$c^2D-z^4P^o$ (164)
7398.72	D	(1)	3.51	5.18	1½-1½	
6901.52	C	(2)	3.39	5.18	2½-1½	
7406.23	D	(1)	3.51	5.18	1½-2½	
6086.663	A	7	3.39	5.42	2½-2½	$c^2D-x^2D^o$† (165)
6474.558	A	(3)	3.51	5.42	1½-1½	
5495.682	A	2	3.39	5.64	2½-2½	$c^2D-w^2D^o$† (166)
5558.825	A	2	3.51	5.73	1½-1½	
5210.042	A	3	3.39	5.76	2½-1½	$c^2D-y^2P^o$ (167)
5368.904	A	(2)	3.51	5.81	1½- ½	
4331.231	A	3	3.39	6.24	2½-3½	$c^2D-u^2F^o$ (168)
4494.746	A	2	3.51	6.26	1½-2½	
6082.431	A	15	3.50	5.53	4½-4½	$z^4F^o-e^4F$† (169)
6122.640	A	8	3.55	5.57	3½-3½	
*6000.668	A	5	3.81	5.66	2½-2½?	
5946.484	A	5	3.85	5.73	1½-1½	
5965.040	F	(2)	3.50	5.57	4½-3½	
5846.575	A	2	3.55	5.66	3½-2½	
5828.299	A	(2)	3.61	5.73	2½-1½	
5212.699	A	25	3.50	5.67	4½-4½	$z^4F^o-f^4F$† (170)
5146.753	A	15	3.55	5.95	3½-3½	
5126.201	A	10	3.61	6.01	2½-2½	
5122.767	A	8	3.85	6.06	1½-1½	
5332.852	A	5	3.55	5.87	3½-4½	
5265.786	A	4	3.61	5.95	2½-3½	
5219.008	A	2	3.85	6.01	1½-2½	
3973.506	A	8	3.50	6.81	4½-5½	$z^4F^o-f^4G$ (171)
3938.856	A	3	3.55	8.89	3½-4½	
3951.717	A	(1n)	3.61	6.73	2½-3½	
3904.790	E	3	3.85	8.81	1½-2½	
5352.046	A	20	3.56	5.87	5½-4½	$z^4G^o-f^4F$† (172)
5280.631	A	20	3.61	5.95	4½-3½	
5266.302	A	10	3.67	6.01	3½-2½	
5268.498	A	10	3.72	6.08	2½-1½	
4035.542	A	6	3.56	6.62	5½-6½	$z^4G^o-f^4H$ (173)
3991.528	A	4	3.61	8.71	4½-5½	
3978.864	C	4	3.87	8.77	3½-4½	
m3972.53	P	Co	3.72	8.82	2½-3½	
6454.998	A	40	3.62	5.53	3½-4½	$z^4D^o-e^4F$† (174)
6595.869	A	12	3.70	5.57	2½-3½	
6477.861	A	10	3.76	5.66	1½-2½	
6395.158	A	8	3.80	5.73	½-1½	
5483.962	A	10	3.62	5.67	3½-4½	$z^4D^o-f^4F$† (175)
5477.089	A	5	3.70	5.95	2½-3½	
5470.460	A	4	3.76	6.01	1½-2½	
5452.305	A	3	3.80	6.08	½-1½	
5287.574	C	3	3.62	5.95	3½-3½	
5328.247	C	3	3.70	6.01	2½-2½	
4594.633	A	4	3.82	6.30	3½-3½	$z^4D^o-e^4D$† (176)
4625.767	A	2	3.70	6.37	2½-2½	
4598.903	A	5	3.82	6.30	3½-2½	$z^4D^o-e^4P$† (177)
4526.794	A	2	3.70	6.42	2½-1½	
4570.024	A	2	3.62	6.32	3½-4½	$z^4D^o-g^4F$† (178)
4704.388	A	(2)	3.70	6.32	2½-3½	
7027.797	A	6	3.91	5.67	4½-3½	$z^2G^o-e^2F$† (179)
7134.290	A	5	4.04	5.77	3½-2½	
5133.467	A	15	3.91	6.32	4½-5½	$z^2G^o-e^4H$ (180)
5156.366	A	10	4.04	6.43	3½-4½	
4756.722	A	(1)	3.91	6.51	4½-3½	
5125.715	A	7	3.91	6.32	4½-5½	$z^2G^o-e^4G$† (181)
5108.903	A	10	3.91	6.33	4½-4½	
4746.115	A	(1)	3.91	6.51	4½-3½	$z^2G^o-g^2F$ (182)
4767.142	A	(2)	4.04	6.63	3½-2½	
7743.27	C	(5)	3.93	5.53	3½-4½	$z^2F^o-e^4F$ (183)
6112.13	D	(1)	4.05	5.57	2½-3½	
7553.970	A	4	3.93	5.57	3½-3½	
7834.50	C	(5)	4.05	5.66	2½-2½	
5211.632	A	3	3.93	6.30	3½-3½	$z^2F^o-e^4D$ (184)
5077.410	A	3	3.93	6.36	3½-2½	
4795.853	A	2	3.93	6.51	3½-3½	$z^2F^o-e^4H$ (185)
4765.070	A	(1)	3.93	6.51	3½-3½	$z^2F^o-g^2F$ (186)
4778.233	A	2	4.05	6.63	2½-2½	
5254.852	A	8	3.95	6.30	3½-3½	$y^4D^o-e^4D$† (187)
5267.785	A	5	4.03	6.37	2½-2½	
5230.363	G	(1)	4.09	6.45	1½-1½	
5210.834	A	3	4.13	8.50	½- ½	
Co I continued						
5257.821	A	10	3.95	6.30	3½-2½	$y^4D^o-e^4P$† (188)
5158.854	A	2	4.03	6.42	2½-1½	
8093.932	A	8	4.00	5.53	5½-4½	$y^4G^o-e^4F$† (189)
7908.679	A	6	4.01	5.57	4½-3½	
7869.868	A	2	4.10	5.66	3½-2½	
7871.370	A	2	4.16	5.73	2½-1½	
5342.703	A	50	4.00	6.31	5½-6½	$y^4G^o-e^4H$† (190)
5343.383	A	20	4.01	6.32	4½-5½	
5276.183	A	8	4.10	6.43	3½-4½	
5250.003	A	7	4.16	6.51	2½-3½	
5333.647	A	5	4.00	6.32	5½-5½	
5334.821	A	6	4.00	6.32	5½-4½	$y^4G^o-g^4F$† (191)
5336.163	A	3	4.01	6.32	4½-3½	
5344.570	A	(1n)	4.01	6.32	4½-4½	
5545.937	A	2	4.10	6.32	3½-3½	
5325.278	A	10	4.00	6.32	5½-5½	$y^4G^o-e^4G$† (192)
5316.772	A	7	4.01	6.33	4½-4½	
5324.990	A	4	4.10	6.33	3½-4½	
5407.520	A	5	4.16	6.44	2½-3½	
8372.79	A	(10)	4.05	5.53	4½-4½	$y^4F^o-e^4F$† (193)
*8589.78	A	(3)	4.13	5.57	3½-3½	
8379.44	A	(3)	4.19	5.66	2½-2½	
8208.57	A	(8)	4.22	5.73	1½-1½	
8151.95	A	(8)	4.05	5.57	4½-3½	
8055.996	A	2	4.13	5.66	3½-2½	
8043.306	A	2	4.19	5.73	2½-1½	
5453.338	A	(1)	4.05	6.32	4½-5½	$y^4F^o-e^4H$ (194)
5359.200	A	6	4.13	6.43	3½-4½	
5325.949	A	4	4.19	6.51	2½-3½	
5454.573	A	20	4.05	6.32	4½-4½	$y^4F^o-g^4F$† (195)
5637.734	A	3	4.13	6.32	3½-3½	
5515.990	A	(1)	4.19	6.43	2½-2½	
5402.000	A	3	4.22	6.51	1½-1½	
5444.585	A	20	4.05	6.32	4½-5½	$y^4F^o-e^4G$† (196)
5381.776	A	6	4.22	6.51	1½-2½	
5425.621	A	(2)	4.05	6.33	4½-4½	
5347.499	A	4	4.13	6.44	3½-3½	
5310.219	A	(1n)	4.19	6.51	2½-2½	
5312.650	A	8	4.19	6.51	2½-3½	$y^4F^o-g^2F$† (197)
5124.718	A	2	4.22	6.63	1½-2½	
5353.500	A	25	4.13	6.43	4½-5½	$y^2G^o-e^2H$ (198)
5362.781	A	15	4.21	6.52	3½-4½	
5341.328	A	7	4.13	6.44	4½-4½	$y^2G^o-e^2G$† (199)
5339.528	C	4	4.21	6.53	3½-3½	
6347.843	A	10	4.38	6.32	3½-3½	$y^2F^o-g^4F$† (200)
6351.448	A	2	4.48	6.43	2½-2½	
5984.253	A	3	4.38	6.44	3½-4½	$y^2F^o-e^2G$ (201)
6049.110	A	6	4.48	6.53	2½-3½	
6617.126	A	6n	4.46	6.32	2½-1½	$y^2D^o-e^2P$ (202)
6591.834	E	(1)	4.55	6.42	1½- ½	
8819.11	A	100	5.13	6.53	5½-4½	$x^4G^o-h^4F$† (203)
8750.13	B	60	5.22	6.63	4½-3½	

Strongest Unclassified Lines of Co I

3443.203	C	5	III†
3177.266	A	6	III

Co II I P 17.1 Anal C List A Mar 1942

3621.22	A	100	2.19	5.60	3-4	$4e^5P-4p^5F^o$ (1)
3578.03	A	30	2.23	5.68	2-3	
3555.93	A	10	2.26	5.73	1-2	
3545.03	A	25	2.19	5.68	3-3	
3517.48	A	10	2.23	5.73	2-2	
3514.21	A	5	2.26	5.78	1-1	
3501.73	A	200	2.19	5.72	3-4	$4s^5P-4p^5D^o$ (2)
3446.40	A	100	2.23	5.81	2-3	
3423.65	A	75	2.26	5.67	1-2	
3415.78	A	75	2.19	5.81	3-3	
*3386.18	A	50	2.23	5.87	2-2	
3387.72	A	60	2.26	5.91	1-1	
3358.59	A	10	2.19	5.87	3-2	
3352.80	A	30	2.23	5.91	2-1	
3370.94	A	50	2.26	5.92	1-0	

Measures inadequate for preparation of list of stronger unclassified lines of Co II.

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ni I I P 7.61 Anal A List B March 1942						
3946.18	P		0.16	3.29	3-3	$a^3F-z^5D^o$
3749.045	B	8	0.00	3.29	4-3	(1)
3832.873	B	5	0.16	3.38	3-2	
3885.87	P		0.27	3.45	2-1	
4093.62	P		0.16	3.18	3-4	
3624.733	B	15	0.00	3.40	4-5	$a^3F-z^5G^o$
3739.229	B	10	0.16	3.47	3-4	(2)
3792.337	B	5	0.27	3.53	2-3	
3561.751	B	10	0.00	3.47	4-4	
3669.241	B	12	0.16	3.53	3-3	
3730.751	B	4	0.27	3.58	2-2	
3498.19	P		0.00	3.53	4-3	
3611.54	P		0.16	3.58	3-2	
3503.595	B	8	0.00	3.52	4-5	$a^3F-z^5F^o$
3602.281	B	15	0.16	3.59	3-4	(3)
3437.280	B	30R	0.00	3.59	4-4	
3507.694	B	8	0.16	3.68	3-3	
3577.240	B	2	0.27	3.72	2-2	
3351.06	P		0.00	3.68	4-3	
3467.502	B	12	0.16	3.72	3-2	
*3548.185	B	20r	0.27	3.75	2-1	
3670.427	B	20	0.16	3.53	3-2	$a^3F-z^3P^o$
3664.095	B	20	0.27	3.64	2-1	(4)
3793.608	B	8	0.27	3.53	2-2	
3391.050	B	50R	0.00	3.64	4-4	$a^3F-z^3F^o$
3571.869	B	50R	0.16	3.62	3-3	(5)
3519.766	B	20R	0.27	3.78	2-2	
3409.578	B	8	0.00	3.82	4-3	
3413.478	B	25R	0.16	3.78	3-2	
3551.534	B	8	0.16	3.64	3-4	
3688.415	B	15	0.27	3.82	2-3	
3369.573	B	80R	0.00	3.66	4-3	$a^3F-z^3D^o$
3500.852	B	25R	0.16	3.69	3-2	(8)
3483.774	B	25R	0.27	3.82	2-1	
3537.982	B	15	0.16	3.66	3-3	
3612.741	B	30R	0.27	3.69	2-2	
3641.641	B	4	0.27	3.66	2-3	
3232.963	B	25R	0.00	3.82	4-5	$a^3F-z^3G^o$
3371.993	B	15r	0.16	3.82	3-4	(7)
3380.885	B	15r	0.27	3.92	2-3	
3226.984	B	5	0.00	3.62	4-4	
3282.696	B	6	0.18	3.92	3-3	
3145.121	B	3	0.00	3.92	4-3	
3221.652	B	10r	0.00	3.63	4-3	$a^3F-z^1F^o$
3366.168	B	20R	0.16	3.83	3-3	(8)
3469.486	B	15	0.27	3.83	2-3	
3320.257	B	20R	0.16	3.88	3-2	$a^3F-z^1D^o$
3420.741	B	5	0.27	3.88	2-2	(9)
3249.440	B	8	0.27	4.07	2-1	$a^3F-z^1P^o$
						(10)
3031.870	B	10r	0.00	4.07	4-4	$a^3F-y^3F^o$
3145.719	B	8	0.18	4.09	3-3	(11)
3164.387	B	8	0.27	4.15	2-2	
3019.143	B	20R	0.00	4.09	4-3	
3097.118	B	15r	0.16	4.15	3-2	
3159.521	B	3	0.16	4.07	3-4	
3235.753	B	4	0.27	4.09	2-3	
2984.131	B	12R	0.00	4.14	4-3	$a^3F-y^3D^o$
3045.006	B	10r	0.16	4.22	3-2	(12)
3105.469	B	15r	0.27	4.25	2-1	
3107.714	B	4	0.16	4.14	3-3	
3129.314	B	7	0.27	4.22	2-2	
3195.573	B	6	0.27	4.14	2-3	
3099.115	B	12r	0.16	4.15	3-4	$a^3F-z^1G^o$
						(13)
*2991.095	B	4	0.27	4.40	2-3	$a^3F-y^1F^o$ †
						(14)
3912.979	B	5	0.03	3.18	3-4	$a^3D-z^5D^o$
3889.671	B	15	0.21	3.38	1-2	(15)
3778.063	B	5	0.03	3.29	3-3	
3811.32	F	(2)	0.21	3.45	1-1	
*3874.06	P	10	0.03	3.36	3-2	
3693.932	B	8	0.11	3.45	2-1	
3772.530	B	6	0.21	3.48	1-0	
3587.931	B	12	0.03	3.47	3-4	$a^3D-z^5G^o$
3609.314	B	15	0.11	3.53	2-3	(18)
3881.951	B	8	0.21	3.58	1-2	
3523.444	B	10	0.03	3.53	3-3	
3553.483	B	7	0.11	3.58	2-2	
3481.852	B	125R	0.03	3.59	3-4	$a^3D-z^5F^o$
3452.890	B	40R	0.11	3.68	2-3	(17)
*3513.933§	B	15	0.21	3.72	1-2	
3374.221	B	15r	0.03	3.68	3-3	
3413.939	B	12r	0.11	3.72	2-2	
3485.888	B	10	0.21	3.75	1-1	
3337.014	B	4	0.03	3.72	3-2	
3387.468	B	3	0.11	3.75	2-1	
3524.541	B	200R	0.03	3.53	3-2	$a^3D-z^3P^o$
3492.956	B	150R	0.11	3.64	2-1	(18)
3510.338	B	80R	0.21	3.73	1-0	
3610.482	B	60R	0.11	3.53	2-2	
3597.705	B	50R	0.21	3.64	1-1	
3722.484	B	15	0.21	3.53	1-2	
3414.765//	B	150R	0.03	3.64	3-4	$a^3D-z^3F^o$
3515.054	B	150R	0.11	3.62	2-3	(19)
3458.474	B	125R	0.21	3.78	1-2	
3433.556	B	70R	0.03	3.62	3-3	
3361.556	B	20R	0.11	3.78	2-2	
3286.948	B	8	0.03	3.78	3-2	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ni I continued						
3392.992	B	100R	0.03	3.66	3-3	$a^3D-z^3D^o$
3446.263	B	100R	0.11	3.69	2-2	(20)
3423.711	B	50R	0.21	3.82	1-1	
3367.892	B	8	0.03	3.69	3-2	
3328.714	B	5	0.11	3.82	2-1	
3472.545	B	70R	0.11	3.66	2-3	
*3548.185	B	20r	0.21	3.69	1-2	
3248.457	B	8	0.03	3.82	3-4	$a^3D-z^3G^o$
3234.649	B	10r	0.11	3.92	2-3	(21)
3165.508	B	3	0.03	3.92	3-3	
3243.058	B	25R	0.03	3.83	3-3	$a^3D-z^1F^o$
3315.663	B	30R	0.11	3.83	2-3	(22)
3200.423	B	5	0.03	3.88	3-2	$a^3D-z^1D^o$
3271.118	B	10	0.11	3.88	2-2	(23)
3362.806	B	6	0.21	3.88	1-2	
3114.124	B	20R	0.11	4.07	2-1	$a^3D-z^1P^o$
3197.113	B	10r	0.21	4.07	1-1	(24)
3050.819	B	100R	0.03	4.07	3-4	$a^3D-y^3F^o$
3101.554	B	100R	0.11	4.09	2-3	(25)
3134.108	B	60R	0.21	4.15	1-2	
3037.935	B	60R	0.03	4.09	3-3	
3054.316	B	50R	0.11	4.15	2-2	
2992.595	B	20R	0.03	4.15	3-2	
3002.491	B	100R	0.03	4.14	3-3	$a^3D-y^3D^o$ †
3003.629	B	60R	0.11	4.22	2-2	(26)
3057.638	B	50R	0.21	4.25	1-1	
2981.851	B	20R	0.11	4.25	2-1	
3084.623	B	25R	0.11	4.14	2-3	
3080.755	B	20R	0.21	4.22	1-2	
2994.460	B	25R	0.03	4.15	3-4	$a^3D-z^1G^o$
						(27)
4298.767	B	(2)	0.42	3.29	2-3	$a^1D-z^5D^o$
4164.636	D	1	0.42	3.38	2-2	(28)
4074.897	B	2	0.42	3.45	2-1	
3972.171	B	10	0.42	3.53	2-3	$a^1D-z^5G^o$
3904.84	P		0.42	3.58	2-2	(29)
3783.530	B	30r	0.42	3.68	2-3	$a^1D-z^5F^o$
3736.813	B	15	0.42	3.72	2-2	(30)
3705.12	P		0.42	3.75	2-1	
3973.562	B	25	0.42	3.53	2-2	$a^1D-z^3P^o$
3831.690	B	20	0.42	3.64	2-1	(31)
3858.301	B	40r	0.42	3.62	2-3	$a^1D-z^3F^o$
*3874.15	P	15	0.42	3.78	2-2	(32)
3807.144	B	35r	0.42	3.86	2-3	$a^1D-z^3D^o$
3775.572	B	30r	0.42	3.69	2-2	(33)
3634.941	B	12	0.42	3.82	2-1	
3523.074	B	4	0.42	3.92	2-3	$a^1D-z^3G^o$
						(34)
3619.392	B	150R	0.42	3.83	2-3	$a^1D-z^1F^o$
						(35)
3566.372	B	100R	0.42	3.88	2-2	$a^1D-z^1D^o$
						(36)
3380.574	B	80R	0.42	4.07	2-1	$a^1D-z^1P^o$
						(37)
3365.788	B	15r	0.42	4.09	2-3	$a^1D-y^3F^o$
3310.202	B	5	0.42	4.15	2-2	(38)
3322.310	B	15r	0.42	4.14	2-3	$a^1D-y^3D^o$
3250.743	B	9	0.42	4.22	2-2	(39)
3225.020	B	10r	0.42	4.25	2-1	
3101.879	B	40R	0.42	4.40	2-3	$a^1D-y^1F^o$
						(40)
3012.004	B	75R	0.42	4.52	2-2	$a^1D-y^1D^o$
						(41)
6126.990	B	(3)	1.87	3.68	2-3	$b^1D-z^5F^o$
6007.313	D	3	1.67	3.72	2-2	(42)
5925.81	P		1.67	3.75	2-1	
6643.641	C	20	1.67	3.53	2-2	$b^1D-z^3P^o$
6256.365	C	15	1.67	3.64	2-1	(43)
6327.603	B	5	1.67	3.62	2-3	$b^1D-z^3F^o$
5647.010	B	(3)	1.87	3.78	2-2	(44)
6191.166	B	12	1.87	3.86	2-3	$b^1D-z^3D^o$
6106.121	C	6	1.67	3.69	2-2	(45)
5748.343	B	2	1.67	3.62	2-1	
5709.559	B	12	1.67	3.83	2-3	$b^1D-z^1F^o$
						(46)
5576.734	B	5	1.87	3.88	2-2	$b^1D-z^1D^o$
						(47)
5137.075	B	8	1.67	4.07	2-1	$b^1D-z^1P^o$
						(48)
5102.971	B	(4)	1.67	4.09	2-3	$b^1D-y^3F^o$
4976.345	B	(2)	1.67	4.15	2-2	(49)
5003.751	B	(2)	1.87	4.14	2-3	$b^1D-y^3D^o$
4843.165	B	(2)	1.87	4.22	2-2	(50)
4766.293	B	(2)	1.87	4.25	2-1	
4519.988	B	4	1.87	4.40	2-3	$b^1D-y^1F^o$
						(51)
4331.845	B	12	1.87	4.52	2-2	$b^1D-y^1D^o$
						(52)
3435.489	B	2	1.87	5.28	2-3	$b^1D-x^3D^o$
						(53)
3338.758	B	3	1.87	5.37	2-1	$b^1D-y^1P^o$
						(54)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ni I continued						
3387.221	B	2	1.67	5.42	2-2	$b^1D-x^1D^o$
						(55)
*3029.297	B	3	1.67	5.74	2-2	$b^1D-x^3P^o$
						(56)
8767.778	C	20	1.82	3.64	0-1	$a^1S-z^3P^o$
						(57)
6177.258	B	(3)	1.82	3.82	0-1	$a^1S-z^3D^o$
						(58)
5476.906	B	50	1.82	4.07	0-1	$a^1S-z^1P^o$
						(59)
5079.961	B	(3)	1.82	4.25	0-1	$a^1S-y^3D^o$
						(60)
7028.95	P		1.93	3.68	2-3	$a^3P-z^5F^o$
6928.52	P		1.94	3.72	1-2	(61)
7714.27	G	3	1.93	3.53	2-2	$a^3P-z^3P^o$
7261.94	G	3	1.94	3.64	1-1	(62)
7197.07	G	5	1.93	3.64	2-1	
6914.562	D	50	1.94	3.73	1-0	
7788.95	G	2	1.94	3.53	1-2	
7414.51	G	2	1.98	3.64	0-1	
7291.48	B	(8)	1.93	3.62	2-3	$a^3P-z^3F^o$
						(63)
7110.91	B	(6)	1.93	3.66	2-3	$a^3P-z^3D^o$
7062.97	B	(4)	1.94	3.69	1-2	(64)
7001.57	B	(4)	1.93	3.69	2-2	
6586.328	B	6	1.94	3.82	1-1	
6532.891	B	(3)	1.93	3.82	2-1	
*6180.093	B	(1n)	1.93	3.92	2-3	$a^3P-z^3G^o$
						(65)
6482.811	B	5	1.93	3.83	2-3	$a^3P-z^1F^o$
						(66)
6314.666	C	15	1.93	3.88	2-2	$a^3P-z^1D^o$
6384.597	D	(1)	1.94	3.88	1-2	(67)
5754.675	B	10	1.93	4.07	2-1	$a^3P-z^1P^o$
5796.078	B	(2)Fe?	1.94	4.07	1-1	(68)
5892.878	C	12	1.98	4.07	0-1	
5711.905	B	5	1.93	4.09	2-3	$a^3P-y^3F^o$
5592.283	B	8	1.94	4.15	1-2	(69)
5553.693	B	2	1.93	4.15	2-2	
5587.865	B	5	1.93	4.14	2-3	$a^3P-y^3D^o$
5424.654	B	4	1.94	4.22	1-2	(70)
5435.671	B	5	1.98	4.25	0-1	
5388.350	B	(2)	1.93	4.22	2-2	
5353.415	B	3	1.94	4.25	1-1	
4762.627	B	3	1.93	4.52	2-2	$a^3P-y^1D^o$
4791.00	E	(1)	1.94	4.52	1-2	(71)
4019.055	D	(3)	1.93	5.00	2-2	a^3P-2°
						(72)
3564.67	P		1.93	5.39	2-3	$a^3P-x^3F^o$
						(73)
3896.65	P		1.93	5.27	2-2	$a^3P-y^3P^o$
3713.338	D	(2)	1.94	5.27	1-1	(74)
3698.29	P		1.93	5.27	2-1	
3713.698	D	1	1.94	5.27	1-2	
3842.387	B	2	1.98	5.37	0-1	$a^3P-y^1P^o$
						(75)
3529.625	D	(1)	1.93	5.42	2-2	$a^3P-x^1D^o$
3545.16	E	(1)	1.94	5.42	1-2	(78)
3176.292	B	2	1.94	5.83	1-1?	$a^3P-x^3P^o$
						(77)
3161.740	B	5	1.93	5.81	2-3	$a^3P-v^3D^o$
3183.251	B	4	1.94	5.82	1-2	(78)
3163.038	B	3	1.98	5.85	0-1	
3170.715	B	2	1.93	5.82	2-2	
3154.565	B	2	1.94	5.85	1-1	
3164.166	B	2	1.94	5.84	1-2	a^3P-4°
						(79)
*2991.095	B	4	1.93	6.05	2-3	a^3P-8°
						(80)
11196.70	P		2.73	3.83	4-3	$a^1G-z^1F^o$
						(61)
8770.66	A	10	2.73	4.14	4-3	$a^1G-y^3D^o$
						(82)
8702.49	A	6	2.73	4.15	4-4	$a^1G-z^1G^o$
						(83)
7365.24	B	1	2.73	4.40	4-3	$a^1G-y^1F^o$
						(84)
4837.65	P		2.73	5.28	4-3	$a^1G-w^3D^o$
						(85)
4401.547	B	30	3.18	5.96	4-5	$z^5D^o-e^5F$
4459.037	B	20	3.29	6.06	3-4	(86)
4470.483	B	15	3.38	6.15	2-3	
4462.460	B	10	3.45	6.22	1-2	
4436.981	B	5	3.48	6.26	0-1	
4284.683	B	8	3.18	6.06	4-4	
4325.607	B	8	3.29	6.15	3-3	
4359.585	B	10	3.38	6.22	2-2	
4384.543	B	5	3.45	6.26	1-1	
4161.34	P		3.18	6.15	4-3	
4221.696	B	(2)	3.29	6.22	3-2	
4285.19	P		3.38	6.26	2-1	
4389.870	B	3	3.45	6.26	1-1	$z^5D^o-f^3D$
4574.03	E	(1)	3.38	6.08	2-3	(67)
4442.441	B	(4)	3.48	6.26	0-1	
4414.20	P		3.29	6.09	3-3	$z^5D^o-e^3F$
4410.516	B	4	3.29	6.09	3-4	(68)
4585.13	P		3.38	6.09	2-3	
4387.36	P	(1)	3.45	6.28	1-2	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
I I continued						
057.347	B	(2)	3.29	6.33	3-3	$z^5D^o-f^3F$
300.464	B	5	3.29	6.33	3-4	(89)
184.475	B	(4)	3.38	6.33	2-3	
148.75	P		3.45	6.42	1-2	
327.392	B	4	3.29	7.00	3-2	$z^5D^o-f^3P$
293.674	D	(1)	3.38	7.13	2-1	(90)
377.23	E	(1)	3.45	7.22	1-0	
412.47	P		3.28	7.00	2-2	
317.830	B	8	3.18	7.01	4-3	$z^5D^o-e^5P$
233.174	B	4	3.29	7.11	3-2	(91)
313.423	B	5n	3.38	7.22	2-1	
268.971	B	2n	3.45	7.22	1-1	
298.02	P		3.48	7.22	0-1	
233.534	B	3	3.18	7.01	4-4	$z^5D^o-i^3F$
193.75	P		3.29	7.16	3-3	(92)
321.242	B	2	3.29	7.01	3-4	
214.059	B	7	3.18	7.02	4-4	$z^5D^o-e^5D$ †
216.821	B	5	3.29	7.13	3-3	(93)
202.142	B	5	3.18	7.03	4-5	$z^5D^o-f^5F$
209.912	B	5	3.29	7.14	3-4	(94)
206.952	B	4n	3.38	7.23	2-3	
219.811	B	3	3.45	7.28	1-2	
233.534	B	3	3.48	7.31	0-1	
118.56	P		3.18	7.14	4-4	
118.714	B	2	3.18	7.14	4-5	$z^5D^o-e^5G$ (95)
284.432	D	4	3.29	7.05	3-3	$z^5D^o-i^3D$
367.29	P		3.38	7.05	2-3	(96)
878.71	B	2	3.47	5.26	4-3	$z^5G^o-e^3D$
034.42	B	1	3.53	5.28	3-2	(97)
621.24	G	(1)	3.58	5.45	2-1	
128.71	B	(2)	3.53	5.26	3-3	
256.72	G	(1)	3.58	5.28	2-2	
714.421	B	25	3.37	5.98	6-5	$z^5G^o-e^5F$
648.659	B	15	3.40	6.08	5-4	(98)
604.994	B	12	3.47	6.15	4-3	
592.529	B	10	3.53	6.22	3-2	
600.372	B	6	3.58	6.26	2-1	
786.541	B	15	3.40	5.98	5-5	
756.519	B	10	3.47	6.08	4-4	
715.778	B	8	3.53	6.15	3-3	
686.218	B	5	3.58	6.22	2-2	
900.97	E	(1)	3.47	5.98	4-5	
874.809	B	(2)	3.53	6.06	3-4	
814.617	B	(2)	3.58	8.15	2-3	
565.45	P		3.37	6.07	6-5	$z^5G^o-e^3G$
736.50	E	(1)	3.47	6.07	4-4	(99)
523.74	P		3.53	8.26	3-3	
740.165	B	(2)	3.47	6.07	4-5	
853.74	E	(1)	3.53	6.07	3-4	
614.58	E	(1)	3.58	8.28	2-3	
606.231	B	3	3.58	6.26	2-1	$z^5G^o-f^3D$
831.15	P	N1	3.53	8.08	3-3	(100)
921.18	P		3.58	8.09	2-2	
595.951	B	(4n)	3.40	6.09	5-4	$z^5G^o-e^3F$
705.50	B	(1)	3.47	6.09	4-3	(101)
701.338	B	(2)	3.47	8.09	4-4	
368.312	B	2	3.40	6.23	5-4	$z^5G^o-f^3F$
302.12	P		3.47	6.33	4-3	(102)
463.427	B	(3)	3.47	6.23	4-4	
398.825	B	3	3.53	8.33	3-3	
587.415	D	(1)	3.53	8.23	3-4	
484.54	E	(1)	3.58	6.33	2-3	
517.81	E	(1)	3.53	8.26	3-4	$z^5G^o-e^1G$ (103)
442.044	B	5	3.40	8.99	5-8	$z^5G^o-e^3H$
378.331	B	4	3.47	7.12	4-5	(104)
339.050	B	4n	3.53	7.22	3-4	
309.32	P		3.40	7.13	5-4	$z^5G^o-g^3G$
421.22	P		3.40	7.01	5-5	(105)
363.813	B	4	3.47	7.13	4-4	
479.264	B	3	3.47	7.01	4-5	
422.332	B	4	3.53	7.13	3-4	
374.642	B	15	3.37	7.02	6-7	$z^5G^o-e^5H$
312.320	B	10	3.40	7.13	5-8	(108)
282.827	B	5	3.47	7.22	4-5	
281.880	B	5	3.53	7.29	3-4	
312.992	B	4	3.58	7.31	2-3	
231.09	P		3.40	7.22	5-5	
364.591	B	5	3.37	7.03	6-5	$z^5G^o-f^5F$
307.013	B	2	3.40	7.14	5-4	(107)
275.60	P		3.47	7.23	4-3	
288.98	P	N1	3.53	7.28	3-2	
308.91	P		3.58	7.31	2-1	
401.166	B	8	3.40	7.03	5-5	
381.241	B	5	3.47	7.14	4-4	
331.28	P		3.53	7.23	3-3	
388.807	B	10	3.37	7.03	6-8	$z^5G^o-e^5G$
304.950	B	8	3.40	7.14	5-5	(108)
245.370	B	4n	3.47	7.27	4-4	
328.870	B	4	3.53	7.24	3-3	
320.779	B	8	3.58	7.30	2-2	
194.78	P		3.40	7.27	5-4	
271.17	P	N1	3.47	7.24	4-3	
273.50	E	(1)	3.53	7.30	3-2	
403.432	B	8	3.40	7.03	5-8	
359.108	B	8	3.47	7.14	4-5	
375.561	B	2n	3.58	7.24	2-3	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ni I continued						
7393.63	B	10	3.59	5.26	4-3	$z^5F^o-e^3D$
7715.63	B	(7)	3.68	5.28	3-2	(109)
7167.01	B	(4)	3.72	5.45	2-1	
7828.81	B	(4)	3.68	5.26	3-3	
7917.48	B	(7)	3.72	5.28	2-2	
7286.56	B	(2)	3.75	5.45	1-1	
8034.56	B	(1)	3.72	5.26	2-3	
6928.25	B	(2)	3.68	5.46	3-2	$z^5F^o-e^1D$ (110)
5017.591	B	10	3.52	5.98	5-5	$z^5F^o-e^5F$
4998.233	B	2	3.59	6.06	4-4	(111)
5012.464	B	2	3.68	6.15	3-3	
4953.204	B	3	3.72	6.22	2-2	
4912.030	B	2	3.75	6.26	1-1	
4866.267	B	10	3.52	6.06	5-4	
4831.183	B	10	3.59	6.15	4-3	
4873.437	B	4	3.68	6.22	3-2	
4857.392	B	2	3.72	8.26	2-1	
5157.993	B	(2)	3.59	5.98	4-5	
5192.524	B	2	3.68	6.06	3-4	
5096.874	B	2	3.72	6.15	2-3	
5010.045	B	(2)	3.75	6.22	1-2	
4849.12	P		3.52	6.07	5-5	$z^5F^o-e^3G$
4978.155	B	(1n)	3.59	6.07	4-4	(112)
4980.161	B	12	3.59	6.07	4-5	
5168.680	B	6	3.88	6.07	3-4	
4873.27	P		3.72	6.26	2-3	
4952.334	D	(1n)	3.59	6.08	4-3	$z^5F^o-f^3D$
5128.03	E	(1)	3.68	6.09	3-2	(113)
4863.931	B	(2n)	3.72	6.26	2-1	
m5142.98	P	N1	3.68	6.08	3-3	
5216.512	D	2	3.72	6.09	2-2	
4918.712	B	(2)	3.75	6.26	1-1	
4808.52	E	(1)	3.52	6.09	5-4	$z^5F^o-e^3F$
4941.920	B	(2)	3.59	8.09	4-3	(114)
4760.23	P		3.68	6.28	3-2	
4937.337	B	4	3.59	6.09	4-4	
5131.770	D	3	3.88	6.09	3-3	
4836.27	E	(1)	3.72	6.28	2-2	
5220.307	B	2	3.72	6.09	2-3	
4890.45	P		3.75	6.28	1-2	
4559.945	B	(3)	3.52	8.23	5-4	$z^5F^o-f^3F$
4501.892	D	(1)	3.68	6.42	3-2	(115)
4675.839	B	(2)	3.59	6.23	4-4	
4655.681	B	(2)	3.68	6.33	3-3	
4845.17	E	(1)	3.68	6.23	3-4	
4728.42	E	(1)	3.72	6.33	2-3	
4617.94	E	(1)	3.75	6.42	1-2	
4325.361	B	2	3.59	6.44	4-3	$z^5F^o-g^3D$
4521.924	D	(1)	3.72	6.45	2-2	(116)
3908.931	B	8n	3.59	6.75	4-5	$z^5F^o-f^3G$
4025.44	D	(1N)	3.68	6.75	3-4	(117)
3559.930	B	2	3.52	6.99	5-6	$z^5F^o-e^3H$
3496.350	B	5	3.59	7.12	4-5	(118)
3485.110	B	2n	3.88	7.22	3-4	
3396.50	P		3.59	7.22	4-4	
3542.00	E	(1)	3.52	7.01	5-4	$z^5F^o-i^3F$
3611.418	D	(1)	3.59	7.01	4-4	(119)
3537.834	D	(1)	3.52	7.01	5-5	$z^5F^o-g^3G$
3482.73	E	(1)	3.59	7.13	4-4	(120)
3483.82	P		3.68	7.23	3-3	
*3606.852	B	4	3.59	7.01	4-5	
3575.952	B	2	3.68	7.13	3-4	
3530.595	B	4	3.52	7.02	5-4	$z^5F^o-e^5D$
3488.293	B	2	3.59	7.13	4-3	(121)
3599.530	D	(1)	3.59	7.02	4-4	
m3624.72	P	N1	3.72	7.13	2-3	
3421.342	B	7	3.52	7.13	5-6	$z^5F^o-e^5H$
3398.184	B	8	3.59	7.22	4-5	(122)
3422.878	B	4	3.68	7.29	3-4	
3444.251	B	5	3.72	7.31	2-3	
3337.36	P		3.59	7.29	4-4	
3405.50	P		3.88	7.31	3-3	
3516.234	B	8	3.52	7.03	5-5	$z^5F^o-f^5F$
*3480.183	B	4	3.59	7.14	4-4	(123)
3476.63	B	2n	3.68	7.23	3-3	
3467.732	B	4	3.72	7.28	2-2	
3467.12	E	(1)	3.75	7.31	1-1	
3415.87	P		3.52	7.14	5-4	
3428.42	P		3.68	7.28	3-2	
3573.27	P		3.68	7.14	3-4	
3517.03	P		3.72	7.23	2-3	
3518.834	B	8	3.52	7.03	5-6	$z^5F^o-e^5G$
3477.884	B	2	3.59	7.14	4-5	(124)
3442.569	B	4n	3.68	7.27	3-4	
3511.94	E	(1)	3.72	7.24	2-3	
*3480.183	B	4	3.75	7.30	1-2	
m3413.46	P	N1	3.52	7.14	5-5	
3471.63	P		3.68	7.24	3-3	
3191.875	B	2	3.52	7.39	5-5	$z^5F^o-g^5F$ (125)
7122.24	B	100	3.53	5.26	2-3	$z^3P^o-e^3D$
7522.78	B	3	3.64	5.28	1-2	(126)
7182.00	B	8	3.73	5.45	0-1	
7030.08	B	3	3.53	5.28	2-2	
8842.07	B	8	3.84	5.45	1-1	
6432.08	G	(1)	3.53	5.45	2-1	
8370.383	B	(4)	3.53	5.46	2-2	$z^3P^o-e^1D$
8772.38	B	5	3.84	5.46	1-2	(127)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ni I continued						
4713.84	P		3.53	6.15	2-3	$z^3P^o-e^5F$
4795.84	E	(1)	3.64	6.22	1-2	(128)
4864.282	B	(2n)	3.73	6.26	0-1	
4705.93	E	(1)	3.64	6.26	1-1	
4904.413	B	10	3.53	6.04	2-1	$z^3P^o-e^3S$
5139.255	B	3	3.64	6.04	1-1	(129)
5328.70	P		3.73	6.04	0-1	
4855.414	B	15	3.53	6.07	2-2	$z^3P^o-e^3P$
5082.354	B	(4)	3.64	6.07	1-1	(130)
4852.560	B	(2n)	3.53	6.07	2-1	
4811.999	B	(2)	3.64	8.21	1-0	
5085.479	B	(2)	3.64	6.07	1-2	
4829.028	B	15	3.53	6.08	2-3	$z^3P^o-f^3D$
5042.195	B	4	3.64	6.09	1-2	(131)
4870.845	B	2	3.73	6.26	0-1	
4815.92	E	(1)	3.53	6.09	2-2	
4712.069	B	(2)	3.64	6.26	1-1	
4513.90	P		3.53	6.26	2-1	
4752.428	B	4	3.64	6.24	1-1	$z^3P^o-e^1P$
4913.970	B	3	3.73	6.24	0-1	(132)
4506.302	D	(1)	3.53	6.27	2-2	$z^3P^o-f^1D$
4703.808	B	4	3.64	6.27	1-2	(133)
*4490.541	B	(3)	3.53	6.28	2-3	$z^3P^o-e^1F$ (134)
4553.175	B	(3)	3.64	6.35	1-0	$z^3P^o-e^1S$ (135)
4231.040	B	5	3.53	6.44	2-3	$z^3P^o-g^3D$
4390.322	B	(2n)	3.64	6.45	1-2	(136)
4252.107	B	(2)	3.73	6.63	0-1	
3844.276	B	(3N)	3.53	6.74	2-1	$z^3P^o-f^3S$
3987.090	D	(2)	3.64	6.74	1-1	(137)
3701.63	P		3.53	6.86	2-3	$z^3P^o-f^1F$ (138)
7617.00	B	5	3.64	5.26	4-3	$z^3F^o-e^3D$
7422.30	B	15	3.62	5.28	3-2	(139)
7409.39	B	8	3.78	5.45	2-1	
7525.14	B	2	3.62	5.26	3-3	
6890.80	B	(2)	3.62	5.46	3-2	$z^3F^o-e^1D$
7327.87	B	(4)	3.78	5.48	2-2	(140)
5265.748	B	(2)	3.64	5.98	4-5	$z^3F^o-e^5F$
5058.03	B	(2)	3.62	6.06	3-4	(141)
5099.322	B	5	3.64	6.06	4-4	
4886.992	B	(3)	3.62	6.15	3-3	
5067.82	E	(1)	3.78	6.22	2-2	
4925.578	B	2	3.64	6.15	4-3	
4754.768	B	3	3.62	6.22	3-2	
4967.551	D	(1)	3.78	6.26	2-1	
5039.259	B	(2r)	3.62	6.07	3-2	$z^3F^o-e^3P$ (142)
5080.523	B	30	3.64	6.07	4-5	$z^3F^o-e^3G$
5035.374	B	12	3.62	6.07	3-4	(143)
4984.126	B	10	3.78	6.26	2-3	
5076.321	B	(2)	3.64	6.07	4-4	
4681.05	P		3.62	6.26	3-3	
5051.527	B	(2N)	3.64	6.08	4-3	$z^3F^o-f^3D$
4996.850	B	(2n)	3.62	6.09	3-2	(144)
5010.961	B	(3n)	3.62	6.08	3-3	
5035.961	B	(3N)	3.64	6.09	4-4	$z^3F^o-e^3F$
5000.335	B	4	3.62	6.09	3-3	(145)
4945.458	B	2	3.78	6.28	2-2	
4646.94	P		3.62	6.28	3-2	
4995.65	P		3.62	6.09	3-4	
5347.71	P		3.78	6.09	2-3	
4763.950	B	4	3.64	6.23	4-4	$z^3F^o-f^3F$
4547.334	B	3	3.62	6.33	3-3	(146)
4688.994	B	2	3.78	6.42	2-2	
4580.619	B	(3)	3.64	6.33	4-3	
4400.26	E	(1)	3.62	6.42	3-2	
4727.851	B	(2)	3.62	6.23	3-4	
4832.704	B	2	3.78	6.33	2-3	
4664.32	P		3.62	6.27	3-2	$z^3F^o-f^1D$
4965.14	E	(1)	3.78	6.27	2-2	(147)
4647.42	P	(1)	3.62	6.28	3-3	$z^3F^o-e^1F$
4946.037	B	(3)	3.78	6.28	2-3	(148)
4400.870	B	3	3.64	6.44	4-3	$z^3F^o-g^3D$
4355.911	B	3	3.62	6.45	3-2	(149)
4330.720	B	2	3.78	6.63	2-1	
4370.041	B	(3)	3.62	6.44	3-3	
4038.27	P		3.64	6.70	4-4	$z^3F^o-g^3F$
4009.984	B	(3)	3.62	6.76	3-3	(150)
3958.60	P		3.78	6.90	2-2	
4035.98	P		3.64	6.70	4-3	
4230.39	P		3.78	6.70	2-3	
3970.503	B	10n	3.64	6.75	4-5	$z^3F^o-f^3G$
3944.128	B	12n	3.62	6.75	3-4	(151)
3912.310	B	8n	3.78	6.93	2-3	
3511.813	D	2	3.62	7.13	3-4?	$z^3F^o-g^3G$ (152)
3651.67	P		3.64	7.02	4-4	$z^3F^o-e^5D$
3537.243	D	(1)	3.64	7.13	4-3	(153)
3528.891	B	(3)	3.64	7.14	4-4	$z^3F^o-f^5F$
m3523.47	P	N1	3.78	7.28	2-2	(154)
3494.703	D	(1)	3.78	7.31	2-1	
3528.540	B	3	3.64	7.14	4-5	$z^3F^o-e^5G$ (155)

Ni I continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
7727.66	B	(10)	3.66	5.26	3-3	$z^3D^o-e^3D$
7748.93	B	(10)	3.69	5.28	2-2	(156)
7574.08	B	(7)	3.82	5.45	1-1	
7619.21	B	(9)	3.66	5.28	3-2	
7028.60	P		3.69	5.45	2-1	
7861.10	B	(4)	3.69	5.26	2-3	
8417.24	B	(2)	3.82	5.28	1-2	
6850.48	B	(2)	3.66	5.46	3-2	$z^3D^o-e^1D$
6955.06	B	3	3.69	5.46	2-2	(157)
7488.73	B	(2)	3.82	5.46	1-2	
5148.65	E	(1)	3.66	6.06	3-4	$z^3D^o-e^5F$
5026.50	E	(1)	3.69	6.15	2-3	(158)
4886.725	B	(2)	3.69	6.32	2-2	
5041.077	B	(2)	3.82	6.26	1-1	
4834.82	P		3.66	6.22	3-2	
4793.47	E	(1)	3.69	6.26	2-1	
5129.383	B	5	3.66	6.07	3-2	$z^3D^o-e^3P$
5184.585	B	4	3.69	6.07	2-1	(159)
5162.93	P		3.82	6.21	1-0	
5187.86	E	(1)	3.69	6.07	2-2	
5475.57	E	(1)	3.82	6.07	1-1	
5125.211	B	4	3.66	6.07	3-4	$z^3D^o-e^3G$
4808.864	B	(2)	3.69	6.26	2-3	(160)
5099.946	B	10	3.66	6.08	3-3	$z^3D^o-f^3D$
5142.771	B	10	3.69	6.09	2-2	(161)
5048.082	B	(1)	3.82	6.26	1-1	
4799.83	E	(1)	3.69	6.26	2-1	
5428.85	E	(1)	3.82	6.09	1-2	
5084.081	B	15	3.66	6.09	3-4	$z^3D^o-e^3F$
5146.478	B	12	3.69	6.09	2-3	(162)
5018.294	B	3	3.82	6.28	1-2	
5088.956	B	(2)	3.66	6.09	3-3	
4772.89	E	(1)	3.69	6.28	2-2	
4723.37	P		3.66	6.28	3-2	
4806.996	B	4	3.66	6.23	3-4	$z^3D^o-f^3F$
4667.766	B	3	3.69	6.33	2-3	(163)
4731.809	B	3	3.82	6.42	1-2	
4620.38	E	(1)	3.66	6.33	3-3	
4512.995	B	(3)	3.69	6.42	2-2	
4841.67	P		3.69	6.24	2-1	$z^3D^o-e^1P$
5094.416	B	(2)	3.82	6.24	1-1	(164)
4752.124	B	(3)	3.66	6.26	3-4	$z^3D^o-e^1G$ (165)
4741.34	P		3.66	6.27	3-2	$z^3D^o-f^1D$
5038.599	B	(4)	3.82	6.27	1-2	(166)
4723.88	P	(1)	3.66	6.28	3-3	$z^3D^o-e^1F$
4773.412	B	(2)	3.69	6.28	2-3	(167)
4437.570	B	2	3.66	6.44	3-3	$z^3D^o-g^3D$
4466.394	B	(3)	3.69	6.45	2-2	(168)
4386.461	B	(2n)	3.82	6.63	1-1	
4423.000	B	(3)	3.66	6.45	3-2	
4481.23	E	(2n)	3.69	6.44	2-3	
4049.71	P		3.69	6.74	2-1	$z^3D^o-f^3S$
4225.02	P		3.82	6.74	1-1	(169)
3993.952	B	3n	3.68	6.75	3-3	$z^3D^o-h^3D$
4023.99	D	(1n)	3.69	6.76	2-2?	(170)
4029.32	P		3.69	6.75	2-3	
3984.140	B	8n	3.66	6.76	3-4	$z^3D^o-h^3F$
4017.56	D	6n	3.69	6.76	2-3	(171)
3941.86	E	(1)	3.82	6.95	1-2	
3696.913	B	3	3.66	7.00	3-2	$z^3D^o-f^3P$ (172)
3689.305	B	2	3.66	7.01	3-4	$z^3D^o-i^3F$
*3606.852	B	4	3.82	7.24	1-2	(173)
3478.292	B	3	3.89	7.24	2-2	
3643.941	B	2n	3.66	7.05	3-3	$z^3D^o-i^3D$ (174)
5521.44	G	(1)	3.82	8.08	4-4	$z^3G^o-e^5F$
5504.120	B	(2)	3.82	8.08	5-4	(175)
5499.39	P	(1)	3.82	6.07	4-5	$z^3G^o-e^3G$
5749.28	G	(1)	3.92	8.07	3-4	(176)
5115.397	B	8	3.82	8.23	5-4	$z^3G^o-f^3F$
4918.363	B	4	3.82	8.33	4-3	(177)
4935.830	B	4	3.92	8.42	3-2	
5130.389	D	(2)	3.82	8.23	4-4	
5121.570	B	(3)	3.92	8.33	3-3	
5351.65	P		3.92	8.23	3-4	
4288.005	B	15	3.82	8.70	5-4	$z^3G^o-g^3F$
4295.888	B	8	3.82	8.70	4-3	(178)
4150.368	B	(2n)	3.92	8.90	3-2	
4298.515	B	(3)	3.82	8.70	4-4	
4450.13	F	(2)	3.92	8.70	3-3	
4064.374	B	2	3.82	8.88	4-3	$z^3G^o-f^1F$
4202.154	B	(2)	3.92	8.88	3-3	(179)
m3889.65	P	N1	3.82	8.99	5-6	$z^3G^o-e^3H$
3744.562	B	5	3.82	7.12	4-5	(180)
3739.782	B	3n	3.92	7.22	3-4	
3630.28	P		3.82	7.22	4-4	
3863.072	B	(5)	3.82	7.01	5-5	$z^3G^o-g^3G$
3728.933	B	(2)	3.82	7.13	4-4	(181)
3721.03	P		3.82	7.13	5-4	
3671.60	F	(3)	3.82	7.01	4-5	
3644.58	F	(3)	3.92	7.13	3-4	
3724.827	B	4	3.82	7.13	5-6	$z^3G^o-e^5H$
3629.906	B	5	3.82	7.22	4-5	(182)
3668.216	B	3	3.92	7.29	3-4	
3723.38	P		3.82	7.14	4-5	$z^3G^o-e^5G$
3715.499	B	2	3.82	7.14	5-5	(183)
3724.26	P		3.92	7.24	3-3	
3657.698	D	2	3.92	7.30	3-2	
*3233.174	B	4	3.82	7.63	5-5	$z^3G^o-h^3G$ (184)
3221.273	B	5	3.82	7.65	5-6?	$z^3G^o-f^3H$ (185)
8637.04	A	15	3.83	5.26	3-3	$z^1F^o-e^3D$
8501.81	G	(2)	3.83	5.28	3-2	(186)
7555.60	B	5	3.83	5.46	3-2	$z^1F^o-e^1D$ (187)
5537.11	G	(1)	3.83	6.06	3-4	$z^1F^o-e^5F$
5175.78	P		3.83	6.22	3-2	(188)
5514.80	G	(1)	3.83	6.07	3-2	$z^1F^o-e^3P$ (189)
5510.001	B	4	3.83	6.07	3-4	$z^1F^o-e^3G$
5088.534	B	(2)	3.83	6.26	3-3	(190)
5480.893	B	(2)	3.83	6.08	3-3	$z^1F^o-f^3D$ (191)
5462.487	B	4	3.83	6.09	3-4	$z^1F^o-e^3F$
5468.101	B	(2)	3.83	6.09	3-3	(192)
4930.821	D	(1)	3.83	6.33	3-3	$z^1F^o-f^3F$
4758.42	E	(1)	3.83	6.42	3-2	(193)
5081.111	B	25	3.83	6.26	3-4	$z^1F^o-e^1G$ (194)
5048.851	B	4	3.83	6.28	3-3	$z^1F^o-e^1F$ (195)
4399.607	B	3	3.83	6.64	3-2	$z^1F^o-g^1D$ (196)
4072.913	B	(2)	3.83	6.86	3-3	$z^1F^o-f^1F$ (197)
3974.650	B	10n	3.83	6.94	3-4	$z^1F^o-f^1G$ (198)
3962.12	B	3n	3.83	6.95	3-3	$z^1F^o-g^1F$ (199)
8954.65	A	2	3.88	5.26	2-3	$z^1D^o-e^3D$
8809.47	A	30	3.88	5.28	2-2	(200)
*7890.22	B	(3)	3.88	5.45	2-1	
7797.62	B	3	3.88	5.46	2-2	$z^1D^o-e^1D$ (201)
5288.21	P		3.88	6.22	2-2	$z^1D^o-e^5F$
5179.136	B	(2)	3.88	6.26	2-1	(202)
5642.660	B	(1)	3.88	6.07	2-2	$z^1D^o-e^3P$
5638.82	G	(1)	3.88	6.07	2-1	(203)
5197.165	B	2	3.88	6.26	2-3	$z^1D^o-e^3G$ (204)
5607.05	G	(1)	3.88	6.08	2-3	$z^1D^o-f^3D$
5589.384	B	2	3.88	6.09	2-2	(205)
5186.592	B	(2)	3.88	6.26	2-1	
5593.735	B	4	3.88	6.09	2-3	$z^1D^o-e^3F$
5155.140	B	4	3.88	6.28	2-2	(206)
5032.748	B	(1n)	3.86	6.33	2-3	$z^1D^o-f^3F$
4853.30	P		3.88	6.42	2-2	(207)
5235.45	E	2	3.66	6.24	2-1	$z^1D^o-e^1P$ (208)
5176.565	B	5	3.88	6.27	2-2	$z^1D^o-f^1D$ (209)
5155.764	B	9	3.88	6.28	2-3	$z^1D^o-e^1F$ (210)
4480.570	B	(3)	3.88	6.64	2-2	$z^1D^o-g^1D$ (211)
4142.184	B	(2)	3.88	6.66	2-3	$z^1D^o-f^1F$ (212)
10193.25	A	100	4.07	5.26	1-2	$z^1P^o-e^3D$
8982.35	A	2	4.07	5.45	1-1	(213)
8862.59	A	100	4.07	5.46	1-2	$z^1P^o-e^1D$ (214)
5628.347	B	(3)	4.07	6.26	1-1	$z^1P^o-e^5F$ (215)
6259.615	B	2	4.07	6.04	1-1	$z^1P^o-e^3G$ (216)
*8180.093	B	(1n)	4.07	6.07	1-2	$z^1P^o-e^3P$
8175.424	B	6	4.07	6.07	1-1	(217)
5780.77	G	(1)	4.07	8.21	1-0	
*6116.181	B	8n	4.07	6.09	1-2	$z^1P^o-f^3D$
5637.121	B	2	4.07	6.26	1-1	(218)
5600.036	B	(4)	4.07	6.26	1-2	$z^1P^o-e^3F$ (219)
5694.998	B	6	4.07	6.24	1-1	$z^1P^o-e^1P$ (220)
5625.328	B	4	4.07	6.27	1-2	$z^1P^o-f^1D$ (221)
5411.227	B	4	4.07	6.35	1-0	$z^1P^o-e^1S$ (222)
4829.98	P		4.07	6.74	1-1	$z^1P^o-f^3S$ (223)
10378.62	A	100	4.07	5.26	4-3	$y^3F^o-e^3D$
10330.23	A	50	4.09	5.28	3-2	(224)
9520.06	A	100	4.15	5.45	2-1	
10530.53	A	20	4.09	5.26	3-3	
10891.25	A	2	4.15	5.28	2-2	
8965.94	A	50	4.09	5.46	3-2	$y^3F^o-e^1D$
9385.62	A	10	4.15	5.46	2-2	(225)
6452.77	G	(1)	4.07	5.98	4-5	$y^3F^o-e^5F$
6258.591	B	2	4.09	6.06	3-4	(226)
6183.892	D	(1)	4.15	6.15	2-3	
6204.640	B	2	4.07	6.06	4-4	
5998.86	G	(1)	4.09	6.15	3-3	
5973.66	G	(1)	4.15	6.22	2-2	
6230.115	B	2	4.09	6.07	3-2	$y^3F^o-e^3F$
6424.905	B	(2n)	4.15	6.07	2-1	(227)
6176.813	C	12	4.07	6.07	4-5	$y^3F^o-e^3G$
6223.994	B	3	4.09	6.07	3-4	(228)
5857.755	B	7	4.15	6.26	2-3	
*6170.568	B	(3)	4.07	6.07	4-4	
5691.52	G	(1)Fe?	4.09	6.26	3-3	
6133.948	H	(1n)	4.07	6.08	4-3	$y^3F^o-f^3D$
6165.18	P		4.09	6.09	3-2	(229)
6186.740	B	2	4.09	6.08	3-3	
6360.798	B	(5)	4.15	6.09	2-2	
6111.06	B	2n	4.07	6.09	4-4	$y^3F^o-e^3F$
*6170.568	B	(3)	4.09	6.09	3-3	(230)
6118.06	G	(1)	4.07	6.09	4-3	
5641.112	D	(1)	4.09	6.28	3-2	
6163.42	B	5n	4.09	6.09	3-4	
6366.483	B	4	4.15	6.09	2-3	
5715.086	B	6	4.07	6.23	4-4	$y^3F^o-f^3F$
5494.890	B	2	4.09	6.33	3-3	(231)
m5424.56	P	N1	4.15	6.42	2-2	
5453.255	B	(2)	4.07	6.33	4-3	
5281.692	B	(2)	4.09	6.42	3-2	
5760.847	B	4	4.09	6.23	3-4	
5649.697	B	2	4.15	6.33	2-3	
5682.204	B	8	4.09	6.26	3-4	$y^3F^o-e^1G$ (232)
5666.78	P		4.09	6.27	3-2	$y^3F^o-f^1D$
*5831.624	B	2	4.15	6.27	2-2	(233)
5641.880	B	(4)	4.09	6.28	3-3	$y^3F^o-e^1F$
5805.233	B	5	4.15	6.28	2-3	(234)
4701.536	B	3	4.07	6.70	4-4	$y^3F^o-g^3F$
4729.291	B	(2)	4.09	6.70	3-3	(235)
*4490.541	B	(3)	4.15	6.90	2-2	
4698.408	B	(2)	4.07	6.70	4-3	
4732.465	B	3	4.09	6.70	3-4	
4843.53	P		4.15	6.70	2-3	
4450.301	B	(2)	4.09	6.86	3-3	$y^3F^o-f^1F$
4551.236	B	(3)	4.15	6.86	2-3	(236)
4236.372	B	(2)	4.09	7.00	3-2	$y^3F^o-f^3F$
4138.52	F	(2)	4.15	7.13	2-1	(237)
4201.723	B	5	4.07	7.01	4-4	$y^3F^o-i^3F$
*4022.052	B	(2)	4.09	7.16	3-3	(238)
3995.83	P		4.15	7.24	2-2	
4195.531	B	4	4.07	7.01	4-5	$y^3F^o-g^3G$
4051.18	P		4.09	7.13	3-4	(239)
4025.114	B	(3)	4.07	7.14	4-4	$y^3F^o-f^5F$
3924.16	P		4.09	7.23	3-3	(240)
3938.76	P		4.15	7.28	2-2	
*4022.052	B	(2)	4.07	7.14	4-5	$y^3F^o-e^5G$ (241)
10979.87	A	5	4.14	5.26	3-3	$y^3D^o-e^3D$
11586.73	P		4.22	5.26	2-2	(242)
10302.61	A	50	4.25	5.45	1-1	
10762.24	A	2	4.14	5.28	3-2	
10048.60	A	10	4.22	5.45	2-1	
11927.89	P		4.25	5.26	1-2	
9696.90	A	40	4.22	5.46	2-2	$y^3D^o-e^1D$
10145.37	A	20	4.25	5.46	1-2	(243)
6414.603	B	(5)	4.14	6.06	3-4	$y^3D^o-e^5F$
6272.650	D	(1)	4.25	6.22	1-2	(244)
6142.047	D	(1)	4.14	6.15	3-3	
6177.49	E	(1)	4.22	6.22	2-2	
6119.780	B	(2)	4.25	6.26	1-1	
6759.41	G	(1)	4.22	6.04	2-1	$y^3D^o-e^3S$ (245)
6364.697	B	(5n)	4.14	6.07	3-2	$y^3D^o-e^3P$
6661.39	B	(3)	4.22	6.07	2-1	(246)
6300.363	D	(1)	4.25	6.21	1-0	
6378.263	B	5	4.14	6.07	3-4	$y^3D^o-e^3G$
6053.680	B	2	4.22	6.26	2-3	(247)
6339.148	B	7	4.14	6.08	3-3	$y^3D^o-f^3D$
6592.472	D	(3)	4.22	6.09	2-2	(248)
6130.174	B	(3)	4.25	6.26	1-1	
6316.61	G	(1g?)	4.14	6.09	3-2	
6039.312	H	(1n)	4.22	6.26	2-1	
8617.14	P		4.22	6.08	2-3	
6700.90	G	(1)	4.25	6.09	1-2	
m6314.67	P	N1	4.14	6.09	3-4	$y^3D^o-e^3F$
6596.594	B	(4)	4.22	6.09	2-3	(249)
6066.290	B	5n	4.25	6.26	1-2	
6322.165	B	(3)	4.14	6.09	3-3	
5996.74	B	3n	4.22	6.28	2-2	
m5892.76	P	N1	4.14	6.23	3-4	$y^3D^o-f^3F$
*5631.624	B	2	4.22	6.33	2-3?	(250)
5669.945	B	(3)	4.25	6.42	1-2	
5614.790	B	5	4.14	6.33	3-3	
5592.146	D	(1)	4.22	6.42	2-2	
5392.371	B	(2)	4.14	6.42	3-2	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ni I continued						
6025.73	G	(1)	4.22	6.27	2-2	$y^3D^o-f^1D$
•6116.181	B	6n	4.25	6.27	1-2	(251)
5997.610	B	2n	4.22	6.28	2-3	$y^3D^o-e^1F$ (252)
5863.97	G	(2)	4.25	6.35	1-0	$y^3D^o-e^1S$ (253)
4821.143	B	(2)	4.14	6.70	3-4	$y^3D^o-g^3F$
4976.71	P		4.22	6.70	2-3	(254)
4657.38	E	(1)	4.25	6.90	1-2	
4817.847	B	(2)	4.14	6.70	3-3	
4815.982	B	(3)	4.14	7.13	3-4	$y^3D^o-g^3G$
4102.74	P		4.22	7.23	2-3	(255)
4235.54	P		4.14	7.05	3-3	$y^3D^o-1^3D$
4357.85	P	(1)	4.22	7.05	2-3	(256)
6451.580	B	(2)Fe?	4.15	6.06	4-4	$z^1G^o-e^5F$ (257)
6421.507	B	(5n)	4.15	6.07	4-5	$z^1G^o-e^3G$ (258)
5923.930	B	(1)	4.15	6.23	4-4	$z^1G^o-f^3F$
5843.099	B	(2)	4.15	6.33	4-3	(259)
4842.01	E	(1)	4.15	6.70	4-4	$z^1G^o-g^3F$
4838.651	B	2	4.15	6.70	4-3	(260)
4546.930	B	5	4.15	6.86	4-3	$z^1G^o-f^1F$ (261)
4424.84	E	(1)	4.15	6.94	4-4	$z^1G^o-f^1G$ (262)
7333.49	B	(2)Fe?	4.40	6.08	3-3	$y^1F^o-f^3D$ (263)
6635.15	B	3	4.40	6.26	3-4	$y^1F^o-e^1G$ (264)
6580.22	B	(2n)	4.40	6.28	3-3	$y^1F^o-e^1F$ (265)
7953.11	B	(1)	4.52	6.07	2-1	$y^1D^o-e^3P$ (266)
7890.22	B	(3)	4.52	6.08	2-3	$y^1D^o-f^3D$
7855.12	B	(3)	4.52	6.09	2-2	(267)
7082.22	G	(1)	4.52	6.26	2-1	
7863.79	B	(5)	4.52	6.09	2-3	$y^1D^o-e^3F$ (268)
7173.73	B	(2)	4.52	6.24	2-1	$y^1D^o-e^1P$ (269)
7063.57	B	(2)	4.52	6.27	2-2	$y^1D^o-f^1D$ (270)
7024.86	B	3	4.52	6.28	2-3	$y^1D^o-e^1F$ (271)
5664.017	B	3	4.52	6.70	2-3	$y^1D^o-g^3F$ (272)
5268.348	B	2	4.52	6.86	2-3	$y^1D^o-f^1F$ (273)
4971.354	B	2	4.52	7.00	2-2?	$y^1D^o-f^3P$ (274)
8606.45	A	10	5.26	6.70	3-4	$x^3D^o-g^3F$ (275)
7095.40	B	(4)Fe?	5.26	7.00	3-2	$x^3D^o-f^3P$ (276)
7067.50	B	(2)	5.26	7.01	3-4	$x^3D^o-1^3F$ (277)
7657.30	B	(3)	5.39	7.00	3-2	$x^3F^o-f^3P$ (278)
7032.16	G	(1)	5.26	7.01	4-5	$x^3F^o-g^3G$ (279)
7433.48	B	(3)	5.39	7.05	3-3	$x^3F^o-1^3D$ (280)
7735.99	G	(1)	5.27	6.86	2-3	$y^3P^o-f^1F$ (281)
7170.14	B	(2)	5.28	7.00	3-2	$w^3D^o-f^3P$
7521.09	G	(2)	5.49	7.13	2-1	(282)
7501.81	G	(1)	5.57	7.22	1-0	
6141.62	B	(1)	5.28	7.01	3-4	$w^3D^o-1^3F$
7409.17	P		5.49	7.16	2-3	(283)
m7401.17	P	N1	5.57	7.24	1-2	
6576.95	P		5.28	7.16	3-3	
8968.20	A	30	5.32	6.70	5-4	$y^3G^o-g^3F$
10061.29	A	10	5.47	6.70	4-3	(284)
8877.07	A	10	5.47	6.86	4-3	$y^3G^o-f^1F$
9710.21	P	1	5.59	6.86	3-3	(285)
7386.21	B	(7)	5.32	6.99	5-6	$y^3G^o-e^3H$
7481.49	G	(5)	5.47	7.12	4-5	(286)
7552.52	P		5.59	7.22	3-4	
7290.87	B	(1)	5.32	7.01	5-5	$y^3G^o-g^3G$
7419.35	B	(2)	5.47	7.13	4-4	(287)
7545.69	G	(2)	5.59	7.23	3-3	
6813.598	B	(3)	5.32	7.13	5-6	$y^3G^o-e^5H$
7037.37	B	(2)	5.47	7.22	4-5	(288)
7266.22	B	(4)	5.59	7.29	3-4	
9106.40	A	30	5.34	6.70	4-4	$w^3F^o-g^3F$
10321.10	A	5	5.50	6.70	3-3	(289)
8095.93	G	(1)	5.61	7.13	2-1	$w^3F^o-f^3P$ (290)
7401.13	B	(4)	5.34	7.01	4-4	$w^3F^o-1^3F$
7458.92	G	(1)	5.50	7.16	3-3	(291)
7567.35	G	(1)	5.61	7.24	2-2	
Ni I continued						
7381.94	B	(5)	5.34	7.01	4-5	$w^3F^o-g^3G$
7559.62	B	(3)	5.50	7.13	3-4	(292)
7624.75	G	(2)	5.61	7.23	2-3	
6861.24	B	(3)	5.34	7.14	4-5	$w^3F^o-e^5G$
7297.75	B	(3)	5.61	7.30	2-2	(293)
7220.79	B	(3)	5.34	7.05	4-3	$w^3F^o-1^3D$ (294)
9689.35	A	3	5.42	6.70	2-3	$x^1D^o-g^3F$ (295)
8586.20	P	1	5.42	6.86	2-3	$x^1D^o-f^1F$ (296)

Strongest Unclassified Lines of **Ni I**

10295.05	A	5	
9396.57	A	20	
6362.414	D	(5)	
6012.251	B	(5)	
4594.908	B	(5n)	
4142.320	B	(4)	
4006.136	B	3	V
3762.618	B	(3)	
3665.924	B	2	III
3647.71	E	2	II
3335.59	E	2n	V
3332.180	B	6n	V
3309.428	B	2n	V
3268.064	B	4n	V
3264.44	E	2n	V
3233.88	E	2	V
3199.342	B	3n	V
3151.259	B	4n	V

Ni II I P 18.4 Anal C List A Apr 1942

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
•3513.933§	B	8	2.85	6.36	2½-3½	$b^2D-z^4D^o$
3454.16	A	5	2.94	6.51	1½-2½	(1)
3373.98	A	4	2.85	6.51	2½-2½	
3350.42	A	5	2.94	6.62	1½-1½	
3274.90	A	3	2.85	6.62	2½-1½	
3290.69	A	1	2.94	6.69	1½-½	
3208.91	A	1	2.85	6.70	2½-3½	$b^2D-z^4G^o$ (2)
3032.44	A	2	2.85	6.92	2½-2½	$b^2D-z^4F^o$
3063.93	A	2	2.94	6.97	1½-1½	(3)
3769.455	B	5	3.09	6.36	2½-3½	$a^4P-z^4D^o$
3576.762	B	3	3.06	6.51	1½-2½	(4)
3471.35	C	2	3.07	6.62	½-1½	
3608.7	P		3.09	6.51	2½-2½	
3465.62	C	1	3.06	6.62	1½-1½	
3407.30	A	8	3.07	6.69	½-½	
3495.6	P		3.09	6.62	2½-1½	
3401.76	A	2	3.06	6.69	1½-½	
3290.54	A	1?	3.09	6.84	2½-3½	$a^4P-z^4F^o$ (5)
2988.05	A	5	3.09	7.22	2½-2½	$a^4P-z^2F^o$ (6)
3087.07	A	20	3.09	7.09	2½-2½	$a^4P-z^2D^o$ † (7)
3397.82	A	1	3.59	7.22	1½-2½	$a^2P-z^2F^o$ (8)
4362.10	C	1	4.01	6.84	4½-3½	$a^2G-z^4F^o$
4244.80	C	1	4.01	6.92	3½-2½	(9)
4384.6	P		4.01	6.83	4½-4½	$a^2G-z^2G^o$
4192.07	C	1	4.01	6.96	3½-3½	(10)
4067.051	B	3	4.01	7.05	4½-3½	$a^2G-z^2F^o$
3849.58	B	2	4.01	7.22	3½-2½	(11)
4071.0	P		4.01	7.05	3½-3½	
4015.50	C	1	4.01	7.09	3½-2½	$a^2G-z^2D^o$ (12)
3881.92	C	1	8.22	11.40	2½-3½	$z^4P^o-e^4F$ (13)

Measures inadequate for preparation of list of stronger unclassified lines of **Ni II**

Cu I I P 7.69 Anal A List D Apr 1942

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3247.540//	A	1000	0.00	3.80	½-1½	$4^2S-4^2P^o$
3273.957	A	600	0.00	3.77	½-½	(1)
5105.541	A	300	1.38	3.80	2½-1½	$4s^2\ ^2D-4^2P^o$
5782.132	A	200	1.64	3.77	1½-½	(2)
5700.240	A	30	1.64	3.80	1½-1½	
3093.989	A	40	1.38	5.37	2½-3½	$4s^2\ ^2D-4s4p^4D^o$ †
3208.231	A	60	1.64	5.48	1½-2½	(3)
3010.838	A	100	1.38	5.48	2½-2½	
3194.099	A	100	1.64	5.50	1½-1½	
3063.411	A	80	1.64	5.66	1½-1½	$4s^2\ ^2D-4s4p^2P^o$ † (4)
2997.364	A	80	1.64	5.75	1½-2½	$4s^2\ ^2D-4s4p^2D^o$ †
3036.101	A	100	1.64	5.70	1½-1½	(5)
Cu I continued						
8092.634	A	300	3.80	5.33	1½-½	$4^2P^o-5^2S$
7933.130	A	160	3.77	5.33	½-½	(6)
5218.202	A	80	3.80	6.17	1½-2½	$4^2P^o-4^2D$
5153.235	A	100	3.77	6.16	½-1½	(7)
5220.070	A	25	3.80	6.16	1½-1½	
4530.785	A	110	3.80	6.52	1½-½	$4^2P^o-6^2S$
4480.350	A	100	3.77	6.52	½-½	(8)

Cu II I P 20.18 Anal A List D May 1942

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4555.922	A	(100)	8.20	10.91	2-2	$4p^3P^o-s^2\ ^3P$
4832.236	A	30	8.38	10.94	1-1	(1)
4505.997	A	(75)	8.20	10.94	2-1	
4758.421	A	30	8.38	10.98	1-0	
4889.690	A	30	8.38	10.91	1-2	
5060.635	A	30	8.50	10.94	0-1	
3686.555	A	(100)	8.45	11.80	3-4	$4p^3F^o-s^2\ ^1G$ (2)
4043.502	A	75	8.75	11.80	3-4	$4p^3D^o-s^2\ ^1G$ (3)
4671.686	A	40	14.14	16.78	1-2	$4d^3S-4f^3P^o$
4681.990	A	50	14.14	16.77	1-1	(4)
4673.555	A	30	14.14	16.78	1-0	
4909.726	A	100	14.27	16.78	5-6	$4d^3G-4f^3H^o$ †
4931.653	A	100	14.28	16.78	4-5	(5)
4918.373	A	30	14.54	17.05	3-4	
4985.503	A	40	14.33	16.81	3-4	$4d^3D-4f^3F^o$ †
5088.260	A	30	14.37	16.79	2-3	(6)
4937.196	A	20	14.56	17.06	1-2	
5051.778	A	60	14.37	16.81	4-5	$4d^3F-4f^3G^o$ †
5012.611	A	20	14.36	16.82	3-4	(7)
5067.082	A	30	14.63	17.07	2-3	
4812.940	A	40	14.47	17.04	1-2	$4d^1P-4f^1D^o$ (8)
4953.733	A	50	14.55	17.04	4-5	$4d^1G-4f^1H^o$ (9)
5006.787	A	30	14.59	17.05	2-3	$4d^1D-4f^1F^o$ (10)
5065.448	A	40	14.63	17.06	3-4	$4d^1F-4f^1G^o$ (11)

Zn I I P 9.35 Anal A List B May 1942

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3075.901	A	90	0.00	4.01	0-1	$4^1S-4^3P^o$ (1)
4810.534	A	65	4.06	6.63	2-1	$4^3P^o-5^3S$
4722.159	A	75	4.01	6.63	1-1	(2)
4680.138	A	45	3.99	6.63	0-1	
4292.885	A	8	4.01	6.89	1-0	$4^3P^o-5^1S$ (3)
3345.020	A	150	4.06	7.75	2-3	$4^3P^o-4^3D$
3302.588	A	150	4.01	7.75	1-2	(4)
3282.333	A	100	3.99	7.75	0-1	
3345.572	A	100	4.06	7.75	2-2	
3302.941	A	125	4.01	7.75	1-1	
3345.934	A	30	4.06	7.75	2-1	
3072.062	A	70	4.06	8.08	2-1	$4^3P^o-6^3S$
3035.781	A	35	4.01	8.08	1-1	(5)
3018.352	A	30	3.99	8.08	0-1	
6362.347	A	100	5.77	7.71	1-2	$4^1P^o-4^1D$ (6)
5181.995	A	30	5.77	8.15	1-0	$4^1P^o-6^1S$ (7)
4629.814	A	12	5.77	8.44	1-2	$4^1P^o-5^1D$ (8)
4113.210	A	12	5.77	8.77	1-2	$4^1P^o-6^1D$ (9)
6928.319	A	10	6.63	8.41	1-2	$5^3S-6^3P^o$
6938.472	A	6	6.63	8.40	1-1	(10)
6943.202	A	2	6.63	8.40	1-0	

Zn II I P 17.89 Anal A List C May 1942

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
7478.79	B	20	8.09	7.74	1½-2½	$4^2P^o-d^9s^2\ ^2D$
5894.351	A	20	5.98	8.08	½-1½	(1)
6214.58	B	12	6.09	8.08	1½-1½	
7588.48	B	15	10.92	12.54	½-1½	$5^2S-5^2P^o$
7732.50	B	10	10.92	12.51	½-½	(2)
4911.664	A	25	11.96	14.48	2½-3½	$4^2D-4^2P^o$
4924.043	A	30	11.97	14.48	1½-2½	(3)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ga I I P 5.97 Anal A List 8 May 1943						
4172.048//	A	10R	0.10	3.06	1½-½	$4^2P^o-5^2S$
4032.975	A	10R	0.00	3.06	½-½	(1)
Ga II See introduction						
Ge I I P 8.09 Anal A List 8 June 1943						
3124.817	B	(20)	0.88	4.83	2-2	$4p^1D-5s^3P^o$
3269.494	B	(40)	0.88	4.65	2-1	(1)
3039.064	8	(60)	0.88	4.94	2-1	$4p^1D-5s^1P^o$ (2)
4685.837	B	(20)	2.02	4.85	0-1	$4p^1S-5s^3P^o$ (3)
4238.570	8	(50)	2.02	4.94	0-1	$4p^1S-5s^1P^o$ (4)
3067.132	8	(10)	2.02	8.04	0-1	$4p^1S-4d^3D^o$ (5)
11125.28	A	25	4.83	5.94	2-3	$5s^3P^o-5p^3D$ †
10947.51	A	30	4.65	5.78	1-2	(6)
10734.14	A	25	4.62	5.77	0-1	
10405.05	A	40	4.83	8.02	2-2	$5s^3P^o-5p^3P$ †
9625.72	A	35	4.85	5.94	1-1	(7)
Ge II I P 15.9 Anal A List B May 1943						
5893.42	A	25	7.70	9.80	½-1½	$5^2S-5^2P^o$
*6031.09	A	20	7.70	9.75	½-½	(1)
4814.80	B	(200)	9.80	12.36	1½-2½	$5^2P^o-5^2D$
4742.00	8	(50)	9.75	12.36	½-1½	(2)
4824.20	B	(10)	9.80	12.36	1½-1½	
As I I P 10 Anal B List 8 May 1943						
3032.85	A	40	2.30	6.37	1½-1½	$4p^2P^o-5s^4P$ †
3075.32	A	20	2.24	8.28	½-½	(1)
3119.60	A	50	2.30	8.26	1½-½	
9923.03	A	(150)	6.53	7.77	2½-2½	$5s^4P-5p^4P^o$
10023.98	A	(100)	6.37	7.80	1½-1½	(2)
9833.78	A	(80)	6.26	7.51	½-½	
8854.16	A	100	8.53	7.98	2½-3½	$5e^4P-5p^4D^o$
8564.71	A	100	8.37	7.81	1½-2½	(3)
8541.65	A	50	8.26	7.70	½-1½	
9828.69	A	(140)	8.53	7.81	2½-2½	
9287.29	A	25	8.37	7.70	1½-1½	
8821.78	A	150	8.28	7.68	½-½	
9597.94	A	(100)	8.37	7.68	1½-½	
8889.89	A	100	6.53	7.92	2½-2½	$5s^4P-5p^2D^o$ †
8428.94	A	100	8.26	7.72	½-1½	(4)
9300.62	A	50	8.53	7.88	2½-1½	$5e^4P-5p^4S^o$
8305.62	A	50	6.37	7.88	1½-1½	(5)
As II I P 19.78 Anal 8 List C June 1943						
6170.47	A	10	9.77	11.77	1-1	$5s^3P^o-5p^1P$
6023.81	A	10	9.73	11.77	0-1	(1)
5651.53	A	10	10.06	12.25	2-3	$5s^3P^o-5p^3D$ †
5558.31	A	10	9.77	11.99	1-2	(2)
5331.54	A	10	10.08	12.38	2-2	$5s^3P^o-5p^3P$ †
4985.60	A	8	9.77	12.24	1-1	(3)
4730.92	A	10	9.77	12.38	1-2	
5105.80	A	10	10.08	12.48	2-1	$5s^3P^o-5p^3S$ †
4552.37	A	8	9.77	12.48	1-1	(4)
8110.30	A	10	10.22	12.24	1-1	$5s^1P^o-5p^3P$ † (5)
5107.80	A	10	10.22	12.84	1-2	$5s^1P^o-5p^1D$ (8)
4352.25	A	10	10.22	13.06	1-0	$5s^1P^o-5p^1S$ (7)
Se I I P 9.71 Anal 8 List C June 1943						
8918.88	A	25	5.95	7.33	2-3	$5^5S^o-5^5P$
9002.00	A	15	5.95	7.32	2-2	(1)
9036.65	A	10	5.95	7.31	2-1	
10327.30	A	3	8.30	7.49	1-2	$5^3S^o-5^3P$
10386.45	A	2	8.30	7.48	1-1	(2)
10307.60	A	1	6.30	7.49	1-0	
Br II See introduction						
Br I See introduction						
Br II See introduction						
Kr I See introduction						
Kr II See introduction						
Rb I I P 4.16 Anal A List C May 1943						
7800.237//	A	10R	0.00	1.58	½-1½	$5^2S-5^2P^o$
7947.60	A	10R	0.00	1.55	½-½	(1)
4201.851	8	8R	0.00	2.94	½-1½	$5^2S-8^2P^o$
4215.556	B	7R	0.00	2.93	½-½	(2)
Rb II See introduction						
Sr I I P 5.87 Anal A List C May 1943						
8892.585	A	200	0.00	1.79	0-1	$5^1S-5^3P^o$ (1)
4607.331//	A	800R	0.00	2.68	0-1	$5^1S-5^1P^o$ (2)
7070.071	A	2000	1.84	3.58	2-1	$5^3P^o-8^3S$
6878.313	A	1000	1.79	3.58	1-1	(3)
6791.022	A	500	1.77	3.58	0-1	
4962.263	A	40	1.84	4.33	2-3	$5^3P^o-5^3D$
4872.493	A	40	1.79	4.32	1-2	(4)
*4832.075	B	50	1.77	4.32	0-1	
4967.944	A	20	1.84	4.32	2-2	
4876.06	C	15	1.79	4.32	1-1	
4971.668	A	2	1.84	4.32	2-1	
4811.881	A	40	1.84	4.40	2-2	$5^3P^o-5p^2\ ^3P$
4784.320	A	30	1.79	4.37	1-1	(5)
4876.325	B	20	1.84	4.37	2-1	
*4832.075	B	50	1.79	4.34	1-0	
4722.278	A	30	1.79	4.40	1-2	
4741.922	A	30	1.77	4.37	0-1	
4438.044	A	25	1.84	4.82	2-1	$5^3P^o-7^3S$
4361.710	A	20	1.79	4.82	1-1	(8)
4326.445	A	8	1.77	4.62	0-1	
3351.246	A	150	1.84	5.52	2-2	$5^3P^o-4d^2\ ^3P$
3322.231	A	30	1.79	5.51	1-1	(7)
3366.333	A	50	1.84	5.51	2-1	
3329.988	A	30	1.79	5.50	1-0	
3307.534	A	50n	1.79	5.52	1-2	
3301.734	A	50	1.77	5.51	0-1	
6408.463	A	100	2.26	4.19	3-4	$4^3D-4d5p^3P^o$
8503.989	A	80	2.25	4.15	2-3	(8)
6817.266	A	50	2.24	4.11	1-2	
6546.791	A	20	2.28	4.15	3-3	
8843.538	A	20	2.25	4.11	2-2	
5480.865	A	40	2.26	4.51	3-3	$4^3D-4d5p^3D^o$
5504.184	A	30	2.25	4.49	2-2	(9)
5521.785	A	25	2.24	4.48	1-1	
5534.794	A	15	2.26	4.49	3-2	
5540.051	A	15	2.25	4.48	2-1	
5450.838	A	15	2.25	4.51	2-3	
5488.138	A	15	2.24	4.49	1-2	
4891.980	A	25	2.28	4.78	3-4	$4^3D-4^3F^o$
4868.700	A	20	2.25	4.78	2-3	(10)
4855.045	A	20	2.24	4.78	1-2	
5158.040	A	8	2.49	4.88	2-3	$4^1D-4^1F^o$ (11)
8550.244	A	60	2.88	4.56	1-2	$5^1P^o-5p^2\ ^1D$ (12)
Sr II I P 10.98 Anal E List A May 1943						
4077.714//	A	400r	0.00	3.03	½-1½	$5^2S-5^2P^o$
4215.524	A	300r	0.00	2.93	½-½	(1)
10327.314	A	1000	1.83	3.03	2½-1½	$4^2D-5^2P^o$
10914.877	A	200	1.80	2.93	1½-½	(2)
10038.858	A	300	1.80	3.03	1½-1½	
4305.447	A	40	3.03	5.89	1½-½	$5^2P^o-8^2S$
4181.798	A	30	2.93	5.89	½-½	(3)
3464.457	A	50	3.03	8.59	1½-2½	$5^2P^o-5^2D$
3380.711	A	50	2.93	6.58	½-1½	(4)
3474.687	A	10	3.03	8.58	1½-1½	
Y I I P 8.5 Anal A List C June 1943						
8584.89	A	5	0.07	1.94	2½-3½	$a^2D-z^4P^o$
8557.40	A	30	0.00	1.88	1½-2½	(1)
8793.71	A	80	0.07	1.88	2½-2½	
8687.57	A	80	0.00	1.85	1½-1½	
8933.55	A	8	0.07	1.85	2½-1½	
Y I continued						
6435.02	A	500	0.07	1.98	2½-2½	a^2D-z^2
6191.73	A	100†	0.00	1.99	1½-1½	(2)
6402.005	B	50	0.07	1.99	2½-1½	
6222.59	A	50†	0.00	1.98	1½-2½	
6138.44	A	15†	0.07	2.08	2½-2½	a^2D-z^4I
8023.41	A	20†	0.00	2.05	1½-1½	(3)
4674.84	A	125	0.07	2.71	2½-3½	a^2D-z^2
4643.69	A	150	0.00	2.66	1½-2½	(4)
4760.98	A	40	0.07	2.66	2½-2½	
4128.31	A	300	0.07	3.05	2½-2½	a^2D-y^2
4142.88	A	200	0.00	2.98	1½-1½	(5)
4235.94	A	100	0.07	2.98	2½-1½	
4039.83	A	80	0.00	3.05	1½-2½	
4174.14	A	100	0.07	3.02	2½-1½	a^2D-y^2F
4047.84	A	80	0.00	3.05	1½-½	(8)
4083.71	A	100	0.00	3.02	1½-1½	
4102.38	A	350	0.07	3.07	2½-3½	a^2D-y^2F
4077.38	A	300	0.00	3.03	1½-2½	(7)
4167.52	A	100	0.07	3.03	2½-2½	
3820.95	A	400	0.07	3.47	2½-1½	a^2D-x^2P
3592.92	A	200	0.00	3.43	1½-½	(8)
3552.70	A	40	0.00	3.47	1½-1½	
3021.74	A	15	0.07	4.15	2½-3½	a^2D-y^4D
2996.94	A	20	0.00	4.12	1½-2½	(9)
3045.36	A	20	0.07	4.12	2½-2½	
3005.28	A	12	0.00	4.11	1½-1½	
2984.25	A	50	0.07	4.20	2½-3½	a^2D-x^2F
2974.59	A	35	0.00	4.15	1½-2½	(10)
3022.28	A	12	0.07	4.15	2½-2½	
2984.98	A	30	0.07	4.23	2½-3½	a^2D-x^2D
2995.28	A	10	0.07	4.19	2½-1½	(11)
*5468.46//	A	300	1.42	3.88	4½-5½	a^4F-z^4G
5527.54	A	250	1.39	3.63	3½-4½	(12)
5581.87	A	150	1.37	3.58	2½-3½	
5630.14	A	100	1.35	3.54	1½-2½	
4839.87	A	60	1.42	3.97	4½-4½	a^4F-y^4F
4845.67	A	50	1.39	3.94	3½-3½	(13)
4852.89	A	50	1.37	3.91	2½-2½	
4859.84	A	40	1.35	3.89	1½-1½	
4906.11	A	6	1.42	3.94	4½-3½	
4893.44	A	6	1.37	3.89	2½-1½	
4781.04	A	10	1.39	3.97	3½-4½	
4799.30	A	15	1.37	3.94	2½-3½	
4819.64	A	10	1.35	3.91	1½-2½	
4527.25	A	80	1.42	4.15	4½-3½	a^4F-y^4D
4527.80	A	50	1.39	4.12	3½-2½	(14)
4505.95	A	50	1.37	4.11	2½-1½	
4487.47	A	40	1.35	4.10	1½-½	
4475.72	A	20	1.39	4.15	3½-3½	
4487.28	A	20	1.37	4.12	2½-2½	
4477.45	A	25	1.35	4.11	1½-1½	
4513.58	A	4	1.89	4.63	2½-2½	a^2F-y^4P
4581.32	A	6	1.89	4.59	2½-1½	(15)
6845.24	A	10	2.38	4.17	2½-3½	$z^4P^o-e^4I$
8950.32	A	8	2.35	4.12	1½-2½	(18)

Strongest Unclassified Lines of Y I

3587.75	A	20	III
3424.16	A	7	IIIA
3278.43	A	5	IIIA
3091.70	A	15	III

Y II I P 12.3 Anal A List A June 1943						
4204.69	A	10	0.00	2.94	0-1	$a^1S-z^3P^o$ (1)
3833.13	A	200	0.00	3.40	0-1	$a^1S-z^1P^o$ (2)
3498.08	A	80	0.00	3.53	0-1	$a^1S-z^3P^o$ (3)
3112.05	A	4	0.00	3.97	0-1	$a^1S-y^3P^o$ (4)
4309.62	A	50	0.18	3.04	3-2	$a^3D-z^3P^o$
4398.02	A	50	0.13	2.94	2-1	(5)
4422.59	A	40	0.10	2.89	1-0	
4235.73	A	20	0.13	3.04	2-2	
4358.73	A	30	0.10	2.94	1-1	
4199.27	A	5	0.10	3.04	1-2	
4047.88	P		0.18	3.23	3-2	$a^3D-z^1P^o$
3982.59	A	150	0.13	3.23	2-2	(8)
3950.35	A	200	0.10	3.23	1-2	
3710.30//	A	500	0.18	3.51	3-4	$a^3D-z^3F^o$
3774.33	A	300	0.13	3.40	2-3	(7)
3788.70	A	200	0.10	3.38	1-2	
3832.89	A	100	0.18	3.40	3-3	
3818.34	A	80	0.13	3.36	2-2	
3878.28	A	20	0.18	3.36	3-2	
3778.56	A	75	0.13	3.40	2-1	$a^3D-z^1P^o$
3747.55	A	40	0.10	3.40	1-1	(8)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Y II continued						
3600.74	A	300	0.18	3.61	3-3	$a^3D-z^3D^o$ (9)
3611.06	A	200	0.13	3.55	2-2	
3601.93	A	100	0.10	3.53	1-1	
3664.62	A	150	0.18	3.55	3-2	
3628.71	A	100	0.13	3.53	2-1	
3549.02	A	100	0.13	3.61	2-3	
3584.53	A	100	0.10	3.55	1-2	
3243.30	A	150	0.18	3.99	3-2	$a^3D-y^3P^o$ (10)
3216.70	A	100	0.13	3.97	2-1	
3203.33	A	60	0.10	3.96	1-0	
3200.28	A	50	0.13	3.99	2-2	
3195.62	A	50	0.10	3.97	1-1	
3179.42	A	10	0.10	3.99	1-2	
3135.17	A	5	0.18	4.12	3-3	$a^3D-z^1F^o$ (11)
3095.88	A	5	0.13	4.12	2-3	
4682.32	A	20	0.41	3.04	2-2	$a^1D-z^3P^o$ (12)
4881.44	A	2	0.41	2.94	2-1	
4374.94	A	300	0.41	3.23	2-2	$a^1D-z^1D^o$ (13)
4124.91	A	15	0.41	3.40	2-3	$a^1D-z^3F^o$ (14)
4177.54	A	125	0.41	3.36	2-2	
4127.57	A	2	0.41	3.40	2-1	$a^1D-z^1P^o$ (15)
3857.26	P		0.41	3.61	2-3	$a^1D-z^3D^o$ (16)
3930.66	A	15	0.41	3.55	2-2	
3951.59	A	5	0.41	3.53	2-1	
3448.82	A	10	0.41	3.99	2-2	$a^1D-y^3P^o$ (17)
3467.88	A	5	0.41	3.97	2-1	
3327.89	A	100	0.41	4.12	2-3	$a^1D-z^1F^o$ (18)
5610.36	A	2	1.03	3.23	3-2	$a^3F-z^1D^o$ (19)
5509.91	A	30 l	0.99	3.23	2-2	
5087.42	A	100 l	1.08	3.51	4-4	$a^3F-z^3F^o$ (20)
5205.73	A	80	1.03	3.40	3-3	
5200.42	A	60	0.99	3.36	2-2	
5320.78	A	4 l	1.08	3.40	4-3	
5289.82	A	5 l	1.03	3.36	3-2	
4982.13	A	15 l	1.03	3.51	3-4	
5119.12	A	20 l	0.99	3.40	2-3	
5123.21	A	50 l	0.99	3.40	2-1	$a^3F-z^1P^o$ (21)
4883.69	A	200	1.08	3.61	4-3	$a^3F-z^3D^o$ (22)
4900.13	A	150	1.03	3.55	3-2	
4854.87	A	150	0.99	3.53	2-1	
4786.58	A	20	1.03	3.61	3-3	
4823.31	A	30	0.99	3.55	2-2	
4713.26	B	(1)	0.99	3.61	2-3	
4173.78	A	?	1.03	3.99	3-2	$a^3F-y^3P^o$ (23)
4084.99	A	2	1.08	4.12	4-3	$a^3F-z^1F^o$ (24)
3997.43	A	1	1.03	4.12	3-3	
3946.21	A	2	0.99	4.12	2-3	
7450.32	A	5	1.74	3.40	2-1	$a^3P-z^1P^o$ (25)
7406.23	A	2	1.73	3.40	1-1	
7332.97	A	2	1.71	3.40	0-1	
6613.74	A	20	1.74	3.61	2-3	$a^3P-z^3D^o$ (26)
*6795.41	A	30	1.73 1.71	3.55 3.53	1-2 0-1	
6832.49	A	4	1.74	3.55	2-2	
6858.25	A	5	1.73	3.53	1-1	
6896.00	A	10	1.74	3.53	2-1	
5497.42	A	50	1.74	3.99	2-2	$a^3P-y^3P^o$ (27)
*5521.56 §	P	20	1.73	3.97	1-1	
5546.02	A	10 l	1.74	3.97	2-1	
*5544.61 §	A	10 l	1.73	3.96	1-0	
5473.40	A	20 l	1.73	3.99	1-2	
5480.75	A	15 l	1.71	3.97	0-1	
5196.43	A	10 l	1.74	4.12	2-3	$a^3P-z^1F^o$ (28)
3280.91	A	? Ag	1.74	5.50	2-1	$a^3P-y^1P^o$ (29)
8835.85	A	?	1.83	3.23	2-2	$b^1D-z^1D^o$ (30)
8088.20	A	?	1.83	3.36	2-2	$b^1D-z^3F^o$ (31)
7881.90	A	10	1.83	3.40	2-1	$b^1D-z^1P^o$ (32)
6951.68	A	3	1.83	3.61	2-3	$b^1D-z^3D^o$ (33)
7193.74	A	1	1.83	3.55	2-2	
7264.19	A	10	1.83	3.53	2-1	
5728.91	A	10 l	1.83	3.99	2-2	$b^1D-y^3P^o$ (34)
5781.69	A	5 l	1.83	3.97	2-1	
5402.78	A	50 l	1.83	4.12	2-3	$b^1D-z^1F^o$ (35)
3362.00	A	30nl	1.83	5.50	2-1	$b^1D-y^1P^o$ (36)
7388.46	A	1	1.94	3.61	4-3	$a^1G-z^3D^o$ (37)
5662.95	A	200	1.94	4.12	4-3	$a^1G-z^1F^o$ (38)
3225.17	A	5nl	3.04	6.87	2-3	$z^3P^o-e^3D$ (39)
3198.42	C	2n	2.94	6.79	1-2	
Y II continued						
3461.0	A	20nl	3.23	6.79	2-2	$z^1D^o-e^3D$ (40)
3470.18	C	5nl	3.23	6.78	2-1	
3380.114	C	5nl	3.23	6.88	2-2	$z^1D^o-e^1D$ (41)
3086.858	C	30nl	3.23	7.23	2-3	$z^1D^o-e^1F$ (42)
3069.26	A	5n	3.23	7.25	2-1	$z^1D^o-f^3D$ (43)
3026.47	C	10nl	3.23	7.31	2-3	$z^1D^o-e^3G$ (44)
2978.18	A	3n	3.23	7.37	2-1	$z^1D^o-e^1P$ (45)
3668.489	C	50nl	3.51	6.87	4-3	$z^3F^o-e^3D$ (46)
3635.334	C	20nl	3.40	6.79	3-2	
3805.46	C	10nl	3.36	6.78	2-1	
3556.083	C	5nl	3.40	6.87	3-3	
3507.964	C	8nl	3.36	6.88	2-2	$z^3F^o-e^1D$ (47)
3193.48	A	2nl	3.36	7.23	2-3	$z^3F^o-e^1F$ (48)
3232.00	A	3n	3.51	7.32	4-3	$z^3F^o-f^3D$ (49)
3182.42	A	3nl	3.40	7.28	3-2	
3144.37	A	2n	3.40	7.32	3-3	
*3114.45	A	10n	3.36	7.32	2-3?	
*3110.65	A	2n	3.40	7.37	3-2?	$z^3F^o-e^3P$
3081.800	C	2n	3.36	7.37	2-2	(50)
3173.07	A	100nl	3.51	7.39	4-5	$z^3F^o-e^3G$
3129.933	C	40nl	3.40	7.34	3-4	(51)
3128.789	C	20nl	3.36	7.31	2-3	
3077.14	A	4n	3.36	7.37	2-1	$z^3F^o-e^1P$ (52)
3001.42	A	2	3.36	7.47	2-2	$z^3F^o-f^1D$ (53)
2980.69	C	20nl	3.51	7.65	4-4	$z^3F^o-e^3F$ †
3006.0	A	2nl	3.51	7.61	4-3	(54)
3643.4	A	3nl	3.40	6.78	1-1	$z^1P^o-e^3D$ (55)
3544.001	C	3nl	3.40	6.88	1-2	$z^1P^o-e^1D$ (56)
3109.3	A	1	3.40	7.37	1-2	$z^1P^o-e^3P$
3160.60	A	1n	3.40	7.30	1-1	(57)
*3114.45	A	10n	3.40	7.36	1-0?	$z^1P^o-e^1S$ (58)
3104.82	A	4n	3.40	7.37	1-1	$z^1P^o-e^1P$ (59)
3027.75	A	3	3.40	7.47	1-2	$z^1P^o-f^1D$ (60)
3782.302	C	50nl	3.61	6.87	3-3	$z^3D^o-e^3D$
3800.883	C	15nl	3.55	6.79	2-2	(61)
3792.56	C	10nl	3.53	6.78	1-1	
3872.308	C	5nl	3.81	6.79	3-2	
3812.18	C	5nl	3.55	6.78	2-1	
3714.3	A	5nl	3.55	6.87	2-3	
3703.323	C	5nl	3.55	6.88	2-2	$z^3D^o-e^1D$
3684.903	C	5nl	3.53	6.88	1-2	(62)
3409.87	C	4nl	3.61	7.23	3-3	$z^3D^o-e^1F$ (63)
3319.78	C	15nl	3.61	7.32	3-3	$z^3D^o-f^3D$
3308.4	A	20nl	3.55	7.28	2-2	(64)
3318.6	A	4nl	3.53	7.25	1-1	
3333.606	C	2n	3.55	7.25	2-1	
3293.9	A	3n	3.53	7.28	1-2?	
3282.51	A	2	3.61	7.37	3-2	$z^3D^o-e^3P$
3286.71	A	3n	3.55	7.30	2-1	(65)
3312.39	C	4nl	3.53	7.26	1-0	
3231.20	A	2n	3.55	7.37	2-2	
3304.01	C	2n	3.61	7.34	3-4	$z^3D^o-e^3G$
3336.25	C	4nl	3.61	7.31	3-3	(66)
3212.40	A	5nl	3.53	7.37	1-1	$z^3D^o-e^1P$ (67)
3055.3	A	50nl	3.61	7.65	3-4	$z^3D^o-e^3F$
3036.59	C	25nl	3.55	7.61	2-3	(68)
3053.27	C	15nl	3.53	7.57	1-2	
3082.16	A	3n	3.61	7.61	3-3	
3066.02	A	4n	3.55	7.57	2-2	
3050.5	A	1n	3.53	7.58	1-0	$z^3D^o-f^1S$ (69)
4279.3	A	5nl	3.99	6.87	2-3	$y^3P^o-e^3D$
4364.01	A	?	3.97	6.79	1-2	(70)
4364.17	A	?	3.96	6.78	0-1	
4264.88	A	1n	3.99	6.88	2-2	$y^3P^o-e^1D$ (71)
3848.194	C	8nl	3.99	7.19	2-1	$y^3P^o-e^3S$
3824.78	C	5nl	3.97	7.19	1-1	(72)
3813.8	A	2nl	3.96	7.19	0-1	
3808.7	A	1n	3.99	7.23	2-3	$y^3P^o-e^1F$ (73)
3696.6	A	25nl	3.99	7.32	2-3	$y^3P^o-f^3D$
3727.09	C	20nl	3.97	7.28	1-2	(74)
3758.9	A	3nl	3.97	7.25	1-1	
3650.45	A	2n	3.99	7.37	2-2	$y^3P^o-e^3P$
*3721.398§	C	4	3.99	7.30	2-1	(75)
3689.2	A	2n	3.96	7.30	0-1	
3716.91	C	7nl	3.99	7.31	2-3	$y^3P^o-e^3G$ (76)
Y II continued						
3457.088	C	4nl	3.99	7.56	2-1	$y^3P^o-f^3S$
3429.42	C	3n	3.96	7.56	0-1	(77)
3093.76	A	10n	3.99	7.97	2-2	$y^3P^o-f^3P$
*3110.65	A	2n	3.97	7.93	1-1	(78)
*3126.16	A	4n	3.99 3.97	7.93 7.91	2-1 1-0	
3078.64	A	4n	3.97	7.97	1-2	
3103.3	A	2n	3.96	7.93	0-1	
3030.214	C	4n	3.99	8.06	2-3	$y^3P^o-g^3D$
3023.50	A	2n	3.97	8.05	1-2	(79)
4607.94	A	—	4.12	6.79	3-2?	$z^1F^o-e^3D$ (80)
4465.4	A	10nl	4.12	6.88	3-2	$z^1F^o-e^1D$ (81)
3967.69	C	15nl	4.12	7.23	3-3	$z^1F^o-e^1F$ (82)
3846.516	C	3n	4.12	7.32	3-3	$z^1F^o-f^3D$ (83)
3675.64	C	5nl	4.12	7.47	3-2	$z^1F^o-f^1D$ (84)
3330.880	C	20nl	4.12	7.82	3-4	$z^1F^o-e^1G$ (85)
3896.804	C	10nl	5.50	8.67	1-2	$y^1P^o-h^1D$ (86)

Strongest Unclassified Lines of **Y II**

8429.36	A	10n
4734.52	A	5n
3407.7	A	3n

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6832.93	A	12	0.07	1.88	3-3	$a^3F-z^5G^o$ †
6762.38	A	30	0.00	1.83	2-2	(1)
6127.49	A	200	0.15	2.17	4-4	$a^3F-z^3F^o$
6143.23	A	150	0.07	2.08	3-3	(2)
6134.58	A	125	0.00	2.01	2-2	
6407.03	A	4	0.15	2.08	4-3	
6357.10	P		0.07	2.01	3-2	
5885.61	A	8	0.07	2.17	3-4	
5935.23	A	10	0.00	2.08	2-3	
6062.88	A	12	0.07	2.11	3-2	$a^3F-z^5F^o$ †
5955.37	A	12	0.00	2.07	2-1	(3)
5879.79	A	40	0.15	2.25	4-3	$a^3F-z^3D^o$ †
5797.76	A	25	0.07	2.20	3-2	(4)
5735.70	A	20	0.00	2.15	2-1	
4688.45	A	40	0.15	2.79	4-5	$a^3F-z^3G^o$ †
4633.99	A	50	0.07	2.73	3-4	(5)
4575.52	A	40	0.00	2.70	2-3	
3916.64	A	10	0.15	3.30	4-5	$a^3F-y^5G^o$
3879.04	A	10	0.07	3.25	3-4	(6)
3849.26	A	30	0.00	3.21	2-3	
3900.51	A	(10)	0.00	3.16	2-2	
3989.29	A	7	0.07	3.16	3-2	
3968.25	A	80	0.15	3.26	4-5	$a^3F-y^3G^o$ †
*3929.53§	A	150	0.07	3.21	3-4	(7)
3885.41	A	100	0.00	3.18	2-3	
3890.32	A	125	0.15	3.33	4-4	$a^3F-x^3F^o$
3863.88	A	100	0.07	3.26	3-3	(8)
3835.96	A	100	0.00	3.22	2-2	
3966.65	A	50	0.15	3.26	4-3	
3921.80	A	100	0.07	3.22	3-2	
3791.39	A	80	0.07	3.33	3-4	
3780.53	A	100	0.00	3.26	2-3	
3896.53	A	10	0.07	3.24	3-3	$a^3F-x^1F^o$ † (9)
3864.33	A	40	0.15	3.35	4-3	$a^3F-x^3D^o$
3847.01	A	30	0.07	3.28	3-2	(10)
3822.41	A	40	0.00	3.23	2-1	
3766.71	A	60	0.07	3.35	3-3	
3764.38	A	80	0.00	3.28	2-2	
3891.39	A	100	0.15	3.32	4-4	$a^3F-z^1G^o$ † (11)
3663.64	A	300	0.15	3.52	4-4	$a^3F-w^3F^o$
3623.87	A	300	0.07	3.48	3-3	(12)
3586.28	A	100	0.00	3.44	2-2	
3714.13	A	30	0.15	3.48	4-3	
3661.20	A	30	0.07	3.44	3-2	
3575.79	A	100	0.07	3.52	3-4	
3550.46	A	30	0.00	3.48	2-3	
3601.18	A	400	0.15	3.58	4-5	$a^3F-x^3G^o$ †
3547.69	A	100	0.07	3.55	3-4	(13)
3519.60	A	125	0.00	3.51	2-3	
3533.22	A	60	0.15	3.65	4-5	$a^3F-y^5F^o$ †
3501.33	A	15	0.07	3.60	3-4	(14)
3566.10	A	100	0.15	3.61	4-3	$a^3F-v^3D^o$ †
3509.32	A	100	0.07	3.59	3-2	(15)
*3471.18 §	A	100	0.00	3.56	2-1	
3447.36	A	100	0.00	3.58	2-1	$a^3F-z^1P^o$ (16)
3430.29	A	8	0.15	3.75	4-4	$a^3F-x^5D^o$ †
3465.63	A	10	0.15	3.71	4-3	(17)
*3414.66 §	A	20	0.07	3.68	3-2	
3368.63	A	5	0.00	3.66	2-1	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Zr I continued						
3353.65	A	20	0.15	3.83	4-4	$a^3F-y^1G^\circ$ (18)
3234.12	A	100	0.15	3.97	4-5	$a^3F-w^3G^\circ$ (19)
3212.02	A	100	0.07	3.91	3-4	
3191.23	A	100	0.00	3.87	2-3	
3282.73	A	15	0.15	3.91	4-4	
•3250.42§	A	35	0.07	3.87	3-3	
3085.34	A	12	0.07	4.07	3-2	$a^3F-v^3F^\circ$ (20)
3014.44	A	15	0.00	4.09	2-2	$a^3F-u^3F^\circ$ † (21)
3029.52	A	300	0.15	4.23	4-3	$a^3F-u^3D^\circ$ † (22)
3011.73	A	250	0.07	4.17	3-2	
2985.36	A	200	0.00	4.13	2-1	
7111.71	A	20	0.52	2.25	2-3	$a^3P-z^3D^\circ$ † (23)
7439.89	A	10	0.54	2.20	1-2	
7554.73	A	5	0.52	2.15	0-1	
7336.03	A	4	0.52	2.20	2-2	
6140.50	A	15	0.52	2.53	2-2	$a^3P-z^3P^\circ$ (24)
6192.96	A	5	0.54	2.53	1-1	
6120.86	A	(5)	0.52	2.53	2-1	
•6304.35	A	(3)	0.54	2.50	1-0	
6213.06	A	8	0.54	2.53	1-2	
6124.86	A	5	0.52	2.53	0-1	
5620.16	A	15	0.52	2.71	2-1	$a^3P-z^3S^\circ$ † (25)
•5680.93	A	15	0.54	2.71	1-1	
5385.14	A	40	0.52	2.81	2-2	$a^3P-y^1D^\circ$ (26)
5133.42	A	6	0.52	2.92	2-3	$a^3P-y^3D^\circ$ † (27)
5277.40	A	8	0.54	2.88	1-2	
5311.42	A	6	0.52	2.84	0-1	
5224.94	A	6	0.52	2.88	2-2	
5362.56	A	6	0.54	2.84	1-1	
4948.77	A	2	0.52	3.01	2-3	$a^3P-y^1F^\circ$ (28)
4604.42	A	8	0.52	3.20	2-3	$a^3P-z^5P^\circ$ † (29)
4535.75	A	30	0.52	3.24	2-3	$a^3P-x^1F^\circ$ (30)
4360.80	A	15	0.52	3.35	2-3	$a^3P-x^3D^\circ$ † (31)
4507.11	A	30	0.54	3.28	1-2	
4553.01	A	12	0.52	3.23	0-1	
4043.57	A	30	0.52	3.57	2-2	$a^3P-x^3P^\circ$ † (32)
4108.39	A	15	0.54	3.54	1-1	
4121.45	A	30	0.54	3.53	1-0	
3613.70	A	15	0.52	3.93	2-1	$a^3P-y^3S^\circ$ † (33)
3269.66	A	40	0.52	4.29	2-2	$a^3P-y^5P^\circ$ † (34)
3260.11	A	40	0.52	4.30	2-2	$a^3P-w^1D^\circ$ † (35)
3045.82	A	10	0.52	4.57	2-2	$a^3P-v^3P^\circ$ (36)
3094.79	A	15	0.52	4.50	2-1	
•3157.82	A	50	0.54	4.45	1-0	
•3063.58§	A	8	0.54	4.57	1-2	
3095.82	A	12	0.52	4.50	0-1	
3120.74	A	125	0.52	4.47	2-3	$a^3P-t^3D^\circ$ (37)
3132.06	A	50	0.54	4.48	1-2	
3131.11	A	25	0.52	4.46	0-1	
3113.50	A	8	0.52	4.48	2-2	
3148.81	A	25	0.54	4.46	1-1	
3130.05	A	8	0.52	4.48	2-1	
3005.36	A	40	0.52	4.62	2-2	$a^3P-u^3P^\circ$ † (38)
3108.36	A	10	0.54	4.51	1-0	
9015.16	B	20	0.73	2.10	5-6	$a^5F-z^5G^\circ$ † (39)
9276.89	B	25	0.88	2.01	4-5	
9547.26	B	25	0.65	1.94	3-4	
9822.30	B	20	0.82	1.88	2-3	
10084.70	B	12	0.60	1.83	1-2	
8070.12	A	(25)	0.73	2.26	5-5	$a^5F-z^5F^\circ$ (40)
8133.00	A	(20)	0.68	2.20	4-4	
8212.59	A	(18)	0.65	2.15	3-3	
8305.94	A	(15)	0.62	2.11	2-2	
8389.42	A	(8)	0.60	2.07	1-1	
8370.21	A	(10)	0.73	2.20	5-4	
8414.00	A	(7)	0.88	2.15	4-3	
8464.65	A	(10)	0.65	2.11	3-2	
8498.44	A	(10)	0.62	2.07	2-1	
7849.38	A	(15)	0.68	2.26	4-5	
7944.65	A	(15)	0.65	2.20	3-4	
8083.10	A	(10)	0.62	2.15	2-3	
8201.73	A	(10)	0.60	2.11	1-2	
7870.00	A	(12)	0.88	2.25	4-3	$a^5F-z^3D^\circ$ † (41)
7956.69	A	(7)	0.85	2.20	3-2	
8058.14	A	(7)	0.62	2.15	2-1	
7189.14	A	150	0.73	2.45	5-4	$a^5F-z^5D^\circ$ † (42)
7097.76	A	150	0.88	2.42	4-3	
7102.95	A	80	0.85	2.39	3-2	
7103.77	A	40	0.82	2.38	2-1	
7087.35	A	20	0.60	2.34	1-0	
4687.80 //	A	150	0.73	3.36	5-6	$a^5F-y^5G^\circ$ (43)
4710.08	A	100	0.68	3.30	4-5	
4739.48	A	100	0.65	3.25	3-4	
4772.32	A	80	0.82	3.21	2-3	
4815.62	A	60	0.60	3.16	1-2	
4788.69	A	8	0.73	3.30	5-5	
4805.88	A	15	0.68	3.25	4-4	
4824.29	A	12	0.85	3.21	3-3	
4851.36	A	12	0.82	3.16	2-2	
4887.72	A	(2)	0.73	3.25	5-4	
•4893.12	A	2	0.68	3.21	4-3	
4905.09	A	(4)	0.85	3.18	3-2	
Zr I continued						
4866.07	A	5	0.73	3.26	5-5	$a^5F-y^3G^\circ$ † (44)
4883.61	A	5	0.68	3.21	4-4	
4881.25	A	4	0.65	3.18	3-3	
4784.94	A	12	0.68	3.26	4-5	
4815.05	A	12	0.65	3.21	3-4	
4828.05	A	10	0.62	3.18	2-3	
4227.76	A	200	0.73	3.65	5-5	$a^5P-y^5F^\circ$ (45)
4239.31	A	150	0.68	3.60	4-4	
4241.68	A	80	0.65	3.56	3-3	
4241.20	A	50	0.62	3.53	2-2	
4240.35	A	50	0.60	3.51	1-1	
4302.88	A	15	0.73	3.60	5-4	
4294.78	A	20	0.68	3.56	4-3	
•4282.20 §	A	20	0.65	3.53	3-2	
4268.01	A	20	0.62	3.51	2-1	
4166.37	A	20	0.68	3.65	4-5	
4187.56	A	20	0.65	3.60	3-4	
4201.45	A	20	0.62	3.56	2-3	
4213.86	A	15	0.60	3.53	1-2	
4081.22	A	100	0.73	3.75	5-4	$a^5F-x^5D^\circ$ (46)
4072.71	A	100	0.68	3.71	4-3	
4064.16	A	100	0.65	3.68	3-2	
4055.03	A	60	0.62	3.66	2-1	
4044.57	A	25	0.60	3.65	1-0	
4023.99	A	30	0.68	3.75	4-4	
4024.92	A	40	0.65	3.71	3-3	
4037.20	A	40	0.62	3.68	2-2	
4030.03	A	30	0.60	3.68	1-1	
3977.32	A	3	0.65	3.75	3-4	
•3988.68	A	10	0.62	3.71	2-3	
4002.55	A	8	0.60	3.68	1-2	
5664.55	A	25	0.63	2.81	2-2	$a^1D-y^1D^\circ$ (47)
4732.34	A	15	0.63	3.24	2-3	$a^1D-x^1F^\circ$ (48)
4542.22	A	20	0.63	3.35	2-3	$a^1D-x^3D^\circ$ † (49)
4135.68	A	10	0.63	3.61	2-3	$a^1D-v^3D^\circ$ † (50)
4183.31	A	10	0.63	3.58	2-1	$a^1D-z^1P^\circ$ (51)
3530.22	A	15	0.63	4.13	2-3	$a^1D-u^3F^\circ$ † (52)
3360.45	A	25	0.63	4.30	2-2	$a^1D-w^1D^\circ$ (53)
3090.44	A	6	0.63	4.62	2-2	$a^1D-u^3P^\circ$
3136.95	A	30	0.63	4.56	2-1	(54)
•3157.82	A	50	0.63	4.54	2-3	$a^1D-w^1F^\circ$ (55)
3139.79	A	20	0.63	4.56	2-3	$a^1D-v^3G^\circ$ (56)
6445.76	A	10	0.99	2.91	4-3	$a^1G-y^3F^\circ$ (57)
3877.60	A	40	0.99	4.18	4-5	$a^1G-z^1H^\circ$ (58)
3535.16	A	20	0.99	4.49	4-4	$a^1G-x^1G^\circ$ (59)
3005.50	A	60	0.99	5.10	4-4	$a^1G-w^1G^\circ$ (60)
4341.13	A	20	1.39	4.23	3-4	$a^5P-w^5D^\circ$ † (61)
4386.45	A	15	1.36	4.19	2-3	
4394.94	A	8	1.34	4.15	1-2	
4413.04	A	12	1.39	4.19	3-3	
4420.45	A	12	1.36	4.15	2-2	
4431.48	A	10	1.34	4.13	1-1	
5046.61	A	10	1.52	3.97	4-5	$b^3F-w^3G^\circ$ † (62)
5084.92	A	15	1.48	3.91	3-4	
5078.28	A	20	1.44	3.87	2-3	
4883.43	A	15	1.52	4.16	4-4	$b^3F-v^3F^\circ$ † (63)
4707.78	A	4	1.48	4.10	3-3	
4711.91	A	8	1.52	4.14	4-4	$b^3F-u^3F^\circ$ † (64)
4657.84	A	7	1.48	4.13	3-3	
•4644.82	A	8	1.44	4.09	2-2	
6313.05	A	50	1.58	3.53	5-6	$a^3G-z^3H^\circ$ † (65)
6470.25	A	15	1.58	3.48	4-5	
6489.66	A	25	1.54	3.45	3-4	
4753.06	A	3	1.87	4.46	6-7	$a^3H-z^3I^\circ$ (66)
4719.12	A	10	1.65	4.47	5-8	
4782.76	A	8	1.63	4.42	4-5	
Zr II I P 13.97 Anal A Liet A July 1942						
3391.96 //	A	100	0.18	3.80	4½-5½	$a^4F-z^4G^\circ$ (1)
3438.23	A	100	0.09	3.68	3½-4½	
3496.18	A	50	0.04	3.57	2½-3½	
3572.47	A	30	0.00	3.45	1½-2½	
3505.67	A	12	0.16	3.68	4½-4½	
3551.94	A	16	0.09	3.57	3½-3½	
3613.08	A	12	0.04	3.45	2½-2½	
3872.85	A	2	0.09	3.45	3½-2½	
3419.10	A	5	0.16	3.77	4½-3½	$a^4F-z^2F^\circ$ (2)
3478.29	A	4	0.09	3.64	3½-2½	
3424.82	A	7	0.04	3.84	2½-2½	
3305.15	A	15	0.04	3.77	2½-3½	
3388.29	A	15	0.00	3.64	1½-2½	
3273.04	A	75	0.16	3.93	4½-4½	$a^4F-z^4F^\circ$ (3)
3279.28	A	65	0.09	3.86	3½-3½	
3306.27	A	25	0.04	3.77	2½-2½	
3357.26	A	15	0.00	3.68	1½-1½	
Zr II continued						
3340.55	A	15	0.16	3.86	4½-3½	$a^4F-z^4G^\circ$ cont
3356.08	A	18	0.09	3.77	3½-2½	
3393.12	A	10	0.04	3.88	2½-1½	
3214.19	A	40	0.09	3.93	3½-4½	
3231.69	A	30	0.04	3.86	2½-3½	
3272.21	A	6	0.00	3.77	1½-2½	
•3288.81	A	10	0.09	3.85	3½-2½	$a^4F-z^2D^\circ$ (4)
3319.03	A	8	0.04	3.76	2½-1½	
3241.01	A	25	0.04	3.85	2½-2½	
3284.72	A	20	0.00	3.76	1½-1½	
3208.32	A	4	0.00	3.85	1½-2½	
3165.98	A	10	0.16	4.06	4½-3½	$a^4F-z^4D^\circ$ (5)
3136.86	A	25	0.09	4.03	3½-2½	
3129.76	A	12	0.04	3.98	2½-1½	
3125.92	A	12	0.00	3.95	1½- ½	
3110.87	A	8	0.09	4.06	3½-3½	
3095.07	A	12	0.04	4.03	2½-2½	
3099.22	A	10	0.00	3.98	1½-1½	
3068.02	A	2	0.04	4.06	2½-3½	
3065.20	A	2	0.00	4.03	1½-2½	
3061.33	A	3	0.09	4.13	3½-2½	$a^4F-y^2D^\circ$ (6)
3060.11	A	3	0.04	4.07	2½-1½	
3019.84	A	3	0.04	4.13	2½-2½	
3030.91	A	10	0.00	4.07	1½-1½	
2991.40	A	5	0.00	4.13	1½-2½	
3697.49	A	20	0.46	3.80	4½-5½	$b^4F-z^4G^\circ$ (7)
3766.83	A	25	0.41	3.68	3½-4½	
3843.03	A	30	0.36	3.57	2½-3½	
3934.14	A	20	0.32	3.45	1½-2½	
3832.94	A	1	0.46	3.68	4½-4½	
3903.77	A	1	0.41	3.57	3½-3½	
3984.76	A	4	0.36	3.45	2½-2½	
3729.74	A	5	0.46	3.77	4½-3½	$b^4F-z^2F^\circ$ (8)
3814.97	A	2	0.41	3.64	3½-2½	
3667.06	A	3	0.41	3.77	3½-3½	
3758.96	A	1	0.36	3.64	2½-2½	
•3613.43	A	2	0.36	3.77	2½-3½	
3711.95	A	1	0.32	3.64	1½-2½	
3556.81	A	30	0.46	3.93	4½-4½	$b^4F-z^4F^\circ$ (9)
3576.88	A	20	0.41	3.86	3½-3½	
3614.79	A	18	0.36	3.77	2½-2½	
3674.74	A	40	0.32	3.68	1½-1½	
3636.46	A	8	0.46	3.86	4½-3½	
3668.46	A	8	0.41	3.77	3½-2½	
3718.86	A	6	0.36	3.88	2½-1½	
3499.58	A	8	0.41	3.93	3½-4½	
3525.81	A	8	0.36	3.86	2½-3½	
3573.09	A	8	0.32	3.77	1½-2½	
3588.32	A	6	0.41	3.85	3½-2½	$b^4F-z^2D^\circ$ (10)
3630.03	A	10	0.36	3.76	2½-1½	
3536.94	A	5	0.36	3.85	2½-2½	
3587.98	A	7	0.32	3.76	1½-1½	
3497.00	A	2	0.32	3.65	1½-2½	
3430.53	A	30	0.46	4.06	4½-3½	$b^4F-z^4D^\circ$ (11)
3410.26	A	20	0.41	4.03	3½-2½	
3404.84	A	12	0.36	3.98	2½-1½	
3399.36	A	10	0.32	3.95	1½- ½	
3377.45	A	8	0.41	4.06	3½-3½	
3363.81	A	5	0.36	4.03	2½-2½	
3367.81	A	5	0.32	3.98	1½-1½	
3331.90	A	2	0.36	4.06	2½-3½	
3327.67	A	2	0.32	4.03	1½-2½	
3275.15	A	2	0.36	4.13	2½-2½	$b^4F-y^2D^\circ$ (12)
3287.31	A	3	0.32	4.07	1½-1½	
3240.85	P		0.32	4.13	1½-2½	
2998.34	A	1	0.32	4.43	1½-1½	$b^4F-z^2P^\circ$ (13)
2968.95	A	12	0.46	4.62	4½-3½	$b^4F-y^4F^\circ$ (14)
2978.07	A	12	0.41	4.55	3½-2½	
2979.18	A	12	0.36	4.50	2½-1½	
4096.63	A	4	0.56	3.57	2½-3½	$a^2D-z^4G^\circ$ (15)
4211.88	A	12	0.52	3.45	1½-2½	
4258.05	A	12	0.56	3.45	2½-2½	
3636.76	A	60	0.56	3.77	2½-3½	$a^2D-z^2F^\circ$ (16)
3958.24	A	50	0.52	3.64	1½-2½	
3996.96	A	30	0.56	3.64	2½-2½	
3738.13	A	5	0.56	3.86	2½-3½	$a^2D-z^4F^\circ$ (17)
3600.73	A	5	0.52	3.77	1½-2½	
3638.26	A	5	0.56	3.77	2½-2½	
3915.94	A	25	0.52	3.68	1½-1½	
3955.62	P		0.56	3.68	2½-1½	
3750.65	A	6	0.56	3.85	2½-2½	$a^2D-z^2D^\circ$ (16)
3817.59	A	12	0.52	3.76	1½-1½	
3855.43	A	3	0.56	3.76	2½-1½	
3714.77	A	15	0.52	3.85	1½-2½	
3520.67	A	5	0.56	4.06	2½-3½	$a^2D-z^4D^\circ$ (19)
m3558.54	P	Zr+	0.56	4.03	2½-2½	
3457.56	A	12	0.56	4.13	2½-2½	$a^2D-y^2D^\circ$ (20)
3479.02	A	5	0.52	4.07	1½-1½	
3510.46	A	7	0.56	4.07	2½-1½	
3334.62	A	9	0.56	4.26	2½-3½	$a^2D-z^2G^\circ$ (21)
3271.13	A	7	0.52	4.30	1½- ½	$a^2D-z^2S^\circ$ (22)
3162.86	A	35	0.56	4.43	2½-1½	$a^2D-z^2P^\circ$ (23)
3129.18	A	10	0.52	4.47	1½- ½	
3157.00	A	10	0.52	4.43	1½-1½	

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
Zr II continued						
2981.02	A	12	0.56	4.70	3½-3½	a²D-y⁴D°
3036.50	A	7	0.52	4.59	1½-2½	(24)
3088.44	A	2	0.52	4.52	1½-1½	
3111.15	A	2	0.56	4.52	2½-1½	
3125.21	A	4	0.52	4.47	1½- ½	
3036.39	A	15	0.56	4.62	2½-3½	a²D-y⁴F°
3064.84	A	3	0.52	4.55	1½-2½	(25)
3089.00	A	1	0.56	4.55	2½-2½	
3003.73	A	15	0.56	4.68	2½-3½	a²D-y³F°
3020.45	A	5	0.52	4.61	1½-2½	(26)
3044.12	A	4	0.56	4.61	2½-2½	
3013.32	A	8	0.56	4.65	2½-1½	a²D-z⁴S°
2990.10	A	3	0.52	4.65	1½-1½	(27)
4273.52	A	4	0.75	3.64	1½-2½	a²P-z³F°
						(28)
4090.52	A	10	0.75	3.77	1½-2½	a²P-z⁴F°
4156.24	A	15	0.71	3.68	½-1½	(29)
4224.27	A	3	0.75	3.68	1½-1½	
3991.14	A	40	0.75	3.85	1½-2½	a²P-z²D°
4045.63	A	15	0.71	3.76	½-1½	(30)
4110.05	A	3	0.75	3.76	1½-1½	
3772.06	A	4	0.75	4.03	1½-2½	a²P-z⁴D°
3767.89	A	5	0.71	3.98	½-1½	(31)
3823.72	A	1	0.75	3.98	1½-1½	
3807.41	A	2	0.71	3.95	½- ½	
3660.92	A	3	0.75	4.13	1½-2½	a²P-y²D°
3667.40	A	1	0.71	4.07	½-1½	(32)
3720.29	P		0.75	4.07	1½-1½	
3483.54	A	12	0.75	4.30	1½- ½	a²P-z²S°
3437.18	A	10	0.71	4.30	½- ½	(33)
3354.39	A	7	0.75	4.43	1½-1½	a²P-z²P°
3280.75	A	3	0.71	4.47	½- ½	(34)
3322.99	A	10	0.75	4.47	1½- ½	
3311.34	A	4	0.71	4.43	½-1½	
3218.68	A	1	0.75	4.59	1½-2½	a²P-y⁴D°
3318.52	A	7	0.75	4.47	1½- ½	(35)
3278.37	A	1	0.71	4.47	½- ½	
3295.03	A	1	0.75	4.50	1½-1½	a²P-y⁴F°
						(36)
3200.87	A	2	0.75	4.61	1½-2½	a²P-y³F°
						(37)
3088.28	A	1	0.75	4.75	1½-2½	a²P-z⁴P°
3128.79	A	1	0.75	4.70	1½- ½	(38)
3091.30	A	1	0.71	4.70	½- ½	
3021.97	A	1	0.75	4.84	1½-1½	a²P-x⁴D°
3010.28	A	2wl	0.71	4.81	½- ½	(39)
4377.37	A	4	0.80	3.68	3½-4½	a²F-z⁴G°
4317.32	A	12	0.71	3.57	2½-3½	(40)
4454.80	A	10	0.80	3.57	3½-3½	
4496.98	A	15	0.71	3.45	2½-2½	
4149.22	A	75	0.80	3.77	3½-3½	a²F-z²F°
4208.99	A	30	0.71	3.64	2½-2½	(41)
4339.56	A	3	0.80	3.64	3½-2½	
4029.68	A	20	0.71	3.77	2½-3½	
3936.07	A	7	0.80	3.93	3½-4½	a²F-z⁴F°
3921.02	P		0.71	3.86	2½-3½	(42)
4034.10	A	5	0.80	3.86	3½-3½	
4031.35	A	2	0.71	3.77	2½-2½	
4150.97	A	10	0.80	3.77	3½-2½	
4161.20	A	20	0.71	3.68	2½-1½	
4048.68	A	25	0.80	3.85	3½-2½	a²F-z²D°
4050.32	A	15	0.71	3.76	2½-1½	(43)
3934.80	A	20	0.71	3.85	2½-2½	
3782.24	A	4	0.80	4.06	3½-3½	a²F-z⁴D°
3721.69	A	2	0.71	4.03	2½-2½	(44)
3823.41	A	3	0.80	4.03	3½-2½	
3771.98	A	2	0.71	3.98	2½-1½	
3682.67	A	2	0.71	4.06	2½-3½	
3709.27	A	60	0.80	4.13	3½-2½	a²F-y²D°
3871.28	A	20	0.71	4.07	2½-1½	(45)
•3613.43	A	2	0.71	4.13	2½-2½	
3481.14	A	35	0.80	4.34	3½-4½	a²F-z³G°
3479.39	A	30	0.71	4.26	2½-3½	(46)
3568.14	A	4	0.80	4.26	3½-3½	
3514.49	A	10	0.71	4.43	2½-1½	a²F-z³P°
						(47)
3166.29	A	8	0.80	4.70	3½-3½	a²F-y⁴D°
3181.94	A	7	0.71	4.59	2½-2½	(48)
3228.81	A	15	0.80	4.62	3½-3½	a²F-y⁴F°
3212.85	A	6	0.71	4.55	2½-2½	(49)
3256.53	A	1	0.71	4.50	2½-1½	
3155.95	A	1	0.71	4.62	2½-3½	
3191.93	A	12	0.80	4.66	3½-3½	a²F-y²F°
3184.32	A	20	0.71	4.81	2½-2½	(50)
3237.54	A	1	0.80	4.61	3½-2½	
m3120.72	P	Zr	0.71	4.68	2½-3½	
3122.81	A	1	0.80	4.75	3½-2½	a²F-z⁴P°
3054.39	A	3	0.71	4.75	2½-2½	(51)
3013.88	A	0	0.80	4.89	3½-2½	a²F-x⁴D°
						(52)
Zr II continued						
4448.50	A	2	0.99	3.77	2½-3½	a⁴P-z²F°
						(53)
4024.45	A	12	0.99	4.06	2½-3½	a⁴P-z⁴D°
4018.38	A	10	0.96	4.03	1½-2½	(54)
4040.24	A	4	0.93	3.98	½-1½	
4071.09	A	4	0.99	4.03	2½-2½	
4077.05	A	3	0.96	3.98	1½-1½	
4085.88	A	5	0.93	3.95	½- ½	
4131.31	A	1	0.99	3.98	2½-1½	
4123.38	A	1	0.96	3.95	1½- ½	
3941.92	A	3	0.99	4.13	2½-2½	a⁴P-y³D°
						(55)
3692.60	A	1	0.96	4.30	1½- ½	a⁴P-z²S°
						(56)
3588.80	A	2	0.99	4.43	2½-1½	a⁴P-z²P°
3512.87	A	3	0.96	4.47	1½- ½	(57)
3485.31	A	5	0.93	4.47	½- ½	
3334.25	A	10	0.99	4.70	2½-3½	a⁴P-y⁴D°
3396.34	A	7	0.96	4.59	1½-2½	(58)
3432.41	A	7	0.93	4.52	½-1½	
3433.90	A	8	0.99	4.59	2½-2½	
3458.93	A	10	0.96	4.52	1½-1½	
3480.40	A	5	0.93	4.47	½- ½	
•3497.90	A	12	0.99	4.52	2½-1½	
3507.66	A	4	0.96	4.47	1½- ½	
3403.69	A	8	0.99	4.62	2½-3½	a⁴P-y⁴F°
3431.57	A	6	0.96	4.55	1½-2½	(59)
3454.57	A	4	0.93	4.50	½-1½	
3469.94	A	4	0.99	4.55	2½-2½	
3481.44	A	2	0.96	4.50	1½-1½	
m3520.91	P	Zr+	0.99	4.50	2½-1½	
3362.70	A	4	0.99	4.66	2½-3½	a⁴P-y³F°
3376.25	A	7	0.96	4.61	1½-2½	(60)
3413.39	A	5	0.99	4.61	2½-2½	
3374.71	A	15	0.99	4.65	2½-1½	a⁴P-z⁴S°
3338.41	A	10	0.96	4.65	1½-1½	(61)
3313.70	A	8	0.93	4.65	½-1½	
3285.89	A	4	0.99	4.75	2½-2½	a⁴P-z⁴P°
•3288.81	A	10	0.96	4.71	1½-1½	(62)
3272.30	P		0.93	4.70	½- ½	
3324.03	P		0.99	4.71	2½-1½	
3296.41	A	7	0.96	4.70	1½- ½	
3251.46	P		0.96	4.75	1½-2½	
3264.81	A	6	0.93	4.71	½-1½	
3106.58	A	35	0.99	4.97	2½-3½	a⁴P-x⁴D°
3133.49	A	25	0.96	4.89	1½-2½	(63)
3155.68	A	10	0.93	4.84	½-1½	
3165.45	A	7	0.99	4.89	2½-2½	
3178.10	A	15	0.96	4.84	1½-1½	
3181.58	A	8	0.93	4.81	½- ½	
3210.98	A	3	0.99	4.84	2½-1½	
3204.36	A	4	0.96	4.81	1½- ½	
2975.16	A	1	0.96	5.10	1½-1½	a⁴P-y²P° †
3009.85	A	2	0.93	5.03	½- ½	(64)
3048.42	A	2	0.99	5.04	2½-3½	a⁴P-y²G°
						(65)
4818.47	A	1	1.01	3.57	4½-3½	a²G-z⁴G°
						(66)
4461.22	A	10	1.01	3.77	4½-3½	a²G-z²F°
4613.95	A	5	0.97	3.64	3½-2½	(67)
4399.44	A	2	0.97	3.77	3½-3½	
4215.76	A	1	1.01	3.93	4½-4½	a²G-z⁴F°
4401.35	A	2	0.97	3.77	3½-2½	(68)
4286.51	A	5	0.97	3.85	3½-2½	a²G-z²D°
						(69)
4034.84	A	0	0.97	4.03	3½-3½	a²G-z⁴D°
						(70)
3698.17	A	100	1.01	4.34	4½-4½	a²G-z²G°
3751.60	A	75	0.97	4.26	3½-3½	(71)
3796.47	A	20	1.01	4.26	4½-3½	
3655.56	A	7	0.97	4.34	3½-4½	
3344.80	A	15	1.01	4.70	4½-3½	a²G-y⁴D°
3408.09	A	10	0.97	4.59	3½-2½	(72)
3309.90	A	4	0.97	4.70	3½-3½	
•3414.65 §	A	12	1.01	4.62	4½-3½	a²G-y⁴F°
3443.57	A	7	0.97	4.55	3½-2½	(73)
3378.30	A	5	0.97	4.62	3½-3½	
3373.42	A	8	1.01	4.66	4½-3½	a²G-y²F°
3387.87	A	12	0.97	4.61	3½-2½	(74)
3337.93	A	2	0.97	4.66	3½-3½	
3115.73	A	2	1.01	4.97	4½-3½	a²G-x⁴D°
						(75)
3054.84	A	30	1.01	5.05	4½-4½	a²G-y³G°
3028.05	A	20	0.97	5.04	3½-3½	(76)
3057.22	A	5	1.01	5.04	4½-3½	
3025.70	A	2	0.97	5.05	3½-4½	
2976.61	A	10	1.01	5.15	4½-4½	a²G-z²H° †
						(77)
4854.65	A	0	1.23	3.77	2½-3½	b⁴P-z²F°
						(78)
4359.74	A	10	1.23	4.06	2½-3½	b⁴P-z⁴D°
4370.96	A	8	1.20	4.03	1½-2½	(79)
4403.35	A	8	1.18	3.98	½-1½	
4414.54	A	5	1.23	4.03	2½-2½	
4440.45	A	10	1.20	3.98	1½-1½	
•4457.43 §	A	8	1.18	3.95	½- ½	
4485.44	A	2	1.23	3.98	2½-1½	
4495.44	A	3	1.20	3.95	1½- ½	
Zr II continued						
4222.41	A	3	1.20	4.13	1½-2½	b⁴P-y²D°
4266.72	A	1	1.18	4.07	½-1½	(80)
3853.07	A	2	1.23	4.43	2½-1½	b⁴P-z²P°
3819.84	A	2	1.20	4.43	1½-1½	(81)
3792.32	A	2	1.18	4.43	½-1½	
3717.02	A	2	1.20	4.52	1½-1½	b⁴P-y⁴D°
3561.11	A	1	1.23	4.70	2½-3½	(82)
3690.98	P		1.18	4.52	½-1½	
3607.39	A	7	1.23	4.65	2½-1½	b⁴P-z⁴S°
3578.22	A	7	1.20	4.65	1½-1½	(83)
3554.09	A	7	1.18	4.65	½-1½	
3506.04	A	4	1.23	4.75	2½-2½	b⁴P-z⁴P°
3521.28	P		1.20	4.71	1½-1½	(84)
3506.48	A	2	1.18	4.70	½- ½	
3549.51	A	10	1.23	4.71	2½-1½	
3529.99	A	5	1.20	4.70	1½- ½	
3478.50	A	3	1.20	4.75	1½-2½	
•3497.90	A	12	1.18	4.71	½-1½	
3302.66	A	7 l	1.23	4.97	2½-3½	b⁴P-x⁴D°
3343.81	A	4	1.20	4.89	1½-2½	(85)
3369.27	A	3	1.23	4.89	2½-2½	
3394.63	A	3	1.20	4.84	1½-1½	
3402.52	A	1	1.18	4.81	½- ½	
3424.64	A	1	1.20	4.81	1½- ½	
3008.13	A	3	1.23	5.33	2½-2½	b⁴P-y⁴P°
3015.67	A	1	1.20	5.30	1½-1½	(86)
m3036.33	P	Zr+	1.23	5.30	2½-1½	
3025.16	A	3w	1.20	5.28	1½- ½	
2987.80	A	5	1.20	5.33	1½-2½	
2998.49	A	2	1.18	5.30	½-1½	
5124.98	A	2	1.53	3.93	5½-4½	a²H-z⁴F°
						(87)
4379.78	A	9	1.53	4.34	5½-4½	a²H-z²G°
4442.99	A	25	1.48	4.26	4½-3½	(88)
4308.94	A	4	1.48	4.34	4½-4½	
3874.37	A	1	1.48	4.66	4½-3½	a²H-y²F°
						(89)
3505.47	A	15	1.53	5.05	5½-4½	a²H-y²G°
3463.02	A	35	1.48	5.04	4½-3½	(90)
3459.95	A	3	1.48	5.05	4½-4½	
3326.81	A	15	1.53	5.24	5½-5½	a²H-z²H°
3359.96	A	12	1.48	5.15	4½-4½	(91)
3402.87	A	7	1.53	5.15	5½-4½	
3285.77	A	3	1.48	5.24	4½-5½	
3275.65	A	1	1.48	5.25	4½-3½	a²H-x²F°
						(92)
6100.04	A	2	1.75	3.77	2½-3½	b²D-z⁴F°
6114.78	A	2	1.66	3.68	1½-1½	(93)
5418.01	A	1	1.75	4.03	2½-2½	b²D-z⁴D°
						(94)
5191.60	A	7	1.75	4.13	2½-2½	b²D-y²D°
5112.28	A	7	1.66	4.07	1½-1½	(95)
5311.78	A	2	1.75	4.07	2½-1½	
5000.91	A	3	1.66	4.13	1½-2½	
4445.88	A	1	1.66	4.43	1½-1½	b²D-z²P°
						(96)
4186.70	A	12	1.75	4.70	2½-3½	b²D-y⁴D°
4310.62	A	5	1.66	4.59	1½-2½	(97)
4383.10	A	1	1.66	4.47	1½- ½	
4296.74	A	8	1.75	4.62	2½-3½	b²D-y⁴F°
4264.91	A	4	1.66	4.55	1½-2½	(98)
4342.23	A	1	1.66	4.50	1½-1½	
4231.64	A	8	1.75	4.66	2½-3½	b²D-y³F°
4179.81	A	15	1.66	4.61	1½-2½	(99)
4312.23	A	3	1.75	4.61	2½-2½	
3833.87	A	2	1.75	4.97	2½-3½	b²D-x⁴D°
3813.98	A	0	1.66	4.89	1½-2½	(100)
3923.92	A	1	1.75	4.89	2½-2½	
3678.91	A	10	1.75	5.10	2½-1½	b²D-y²P°
3662.14	A	8	1.66	5.03	1½- ½	(101)
3582.08	A	2	1.66	5.10	1½-1½	
3633.49	A	10	1.75	5.15	2½-2½	b²D-x²D°
3565.41	A	5	1.66	5.12	1½-1½	(102)
3661.33	A	4	1.75	5.12	2½-1½	
3539.05	A	4	1.66	5.15	1½-2½	
3527.42	A	7	1.75	5.25	2½-3½	b²D-x²F°
3396.66	A	6	1.66	5.29	1½-2½	(103)
m3483.59	P	Zr+	1.75	5.29	2½-2½	
3222.48	A	15	1.75	5.58	2½-3½	b²D-w²D°
3161.01	A	2	1.66	5.56	1½-1½	(104)
3236.17	A	1	1.75	5.56	2½-1½	
3183.26	P		1.75	5.63	2½-1½	b²D-x²P°
3074.55	A	1	1.66	5.67	1½- ½	(105)
3110.52	A	1	1.66	5.63	1½-1½	
•6106.47	A	2	1.75	3.77	4½-3½	b²G-z²F°
						(106)
4761.67	A	1	1.75	4.34	4½-4½	b²G-z²G°
4894.43	A	0	1.74	4.26	3½-3½	(107)
4925.90	A	1	1.75	4.26	4½-3½	
4191.50	A	6	1.75	4.70	4½-3½	b²G-y⁴D°
4325.64	A	3	1.74	4.59	3½-2½	(108)

Zr II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4301.81	A	5	1.75	4.62	4½-3½	$b^2G-y^4F^o$
4382.95	A	1	1.74	4.55	3½-2½	(109)
4236.56	A	5	1.75	4.66	4½-3½	$b^2G-y^2F^o$
4293.14	A	7	1.74	4.61	3½-2½	(110)
3818.78	A	1	1.74	4.97	3½-3½	$b^2G-x^4D^o$ (111)
3745.97	A	40	1.75	5.05	4½-4½	$b^2G-y^2G^o$
3731.26	A	35	1.74	5.04	3½-3½	(112)
3749.55	P		1.75	5.04	4½-3½	
3727.72	A	10	1.74	5.05	3½-4½	
3542.65	A	25	1.75	5.24	4½-5½	$b^2G-z^2H^o$
3611.90	A	15	1.74	5.15	3½-4½	(113)
3629.12	A	1	1.75	5.15	4½-4½	
3530.85	A	6	1.75	5.25	4½-3½	$b^2G-x^2F^o$
•3471.14 §	A	8	1.74	5.29	3½-2½	(114)
3514.64	A	4	1.74	5.25	3½-3½	
5350.10	A	5	1.82	4.13	2½-2½	$c^2D-y^2D^o$
5350.36	A	5	1.77	4.07	1½-1½	(115)
5477.82	A	2	1.82	4.07	2½-1½	
4719.80	A	1	1.82	4.43	2½-1½	$c^2D-z^2P^o$
4565.43	A	3	1.77	4.47	1½- ½	(116)
4624.86	A	1	1.77	4.43	1½-1½	
4289.18	A	2	1.82	4.70	2½-3½	$c^2D-y^4D^o$ (117)
4404.81	A	2	1.82	4.62	2½-3½	$c^2D-y^4F^o$
4429.34	A	2	1.77	4.55	1½-2½	(118)
4336.36	A	2	1.82	4.66	2½-3½	$c^2D-y^2F^o$
4337.63	A	5	1.77	4.61	1½-2½	(119)
3757.80	A	8	1.82	5.10	2½-1½	$c^2D-y^2P^o$
3782.72	A	5	1.77	5.03	1½- ½	(120)
3827.51	A	1	1.82	5.04	2½-3½	$c^2D-y^2G^o$ (121)
3710.47	A	1	1.82	5.15	2½-2½	$c^2D-x^2D^o$
3679.64	A	1	1.77	5.12	1½-1½	(122)
3651.50	A	2	1.77	5.15	1½-2½	
3599.91	A	7	1.82	5.25	2½-3½	$c^2D-x^2F^o$
3500.15	A	4	1.77	5.29	1½-2½	(123)
3511.55	A	2	1.82	5.33	2½-2½	$c^2D-y^4P^o$
3550.11	P		1.82	5.30	2½-1½	(124)
3282.84	A	12	1.82	5.58	2½-2½	$c^2D-w^2D^o$
•3250.44 §	A	20	1.77	5.56	1½-1½	(125)
3236.61	A	4	1.77	5.58	1½-2½	
3242.18	A	3	1.82	5.63	2½-1½	$c^2D-x^2P^o$
3159.12	A	5	1.77	5.67	1½- ½	(126)
3197.08	A	3	1.77	5.63	1½-1½	
3015.88	A	2	1.82	5.91	2½-2½	$c^2D-w^2F^o$ (127)
6348.54	A	1	2.40	4.34	3½-4½	$b^2F-z^2G^o$
6678.03	A	3	2.41	4.26	2½-3½	(128)
4661.78	A	5	2.40	5.05	3½-4½	$b^2F-y^2G^o$
4885.19	A	4	2.41	5.04	2½-3½	(129)
4494.41	A	8	2.40	5.15	3½-2½	$b^2F-x^2D^o$
4553.96	A	12	2.41	5.12	2½-1½	(130)
4482.04	A	3	2.40	5.15	3½-4½	$b^2F-z^2H^o$ (131)
4333.28	A	15	2.40	5.25	3½-3½	$b^2F-x^2F^o$
•4282.21 §	A	6	2.41	5.29	2½-2½	(132)
4267.30	P		2.40	5.29	3½-2½	
4348.64	D		2.41	5.25	2½-3½	
4205.91	A	2	2.40	5.33	3½-2½	$b^2F-y^4P^o$ (133)
3881.97	A	7	2.40	5.58	3½-2½	$b^2F-w^2D^o$
3914.36	A	7	2.41	5.58	2½-1½	(134)
6787.15	A	2	2.48	4.30	1½- ½	$b^2P-z^2S^o$ (135)
6313.57	A	1	2.48	4.43	1½-1½	$b^2P-z^2P^o$
6028.64	A	2	2.42	4.47	½- ½	(136)
•8106.47	A	2	2.46	4.50	1½-1½	$b^2P-y^4F^o$ (137)
4703.03	A	5	2.48	5.10	1½-1½	$b^2P-y^2P^o$
4734.94	A	1	2.42	5.03	½- ½	(138)
4841.98	A	0	2.48	5.03	1½- ½	
4601.97	A	2	2.42	5.10	½-1½	
4629.07	A	5	2.48	5.15	1½-2½	$b^2P-x^2D^o$
4574.49	A	8	2.42	5.12	½-1½	(139)
4674.41	A	1	2.48	5.12	1½-1½	
4388.50	A	2	2.48	5.29	1½-2½	$b^2P-x^2F^o$ (140)
4323.62	A	2	2.48	5.33	1½-2½	$b^2P-y^4P^o$ (141)
3982.01	A	3	2.48	5.56	1½-2½	$b^2P-w^2D^o$
•3929.54 §	A	8	2.42	5.56	½-1½	(142)
4002.95	A	2	2.48	5.56	1½-1½	
3922.36	A	1	2.48	5.63	1½-1½	$b^2P-x^2P^o$ (143)
3048.28	A	5	2.48	6.53	1½-1½	$b^2P-w^2P^o$
3032.00	A	3	2.42	6.49	½- ½	(144)
3075.55	A	1	2.48	6.49	1½- ½	

Zr II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4908.67	A	1	3.11	5.63	½-1½	$a^2S-x^2P^o$ (145)
3612.34	A	3	3.11	6.53	½-1½	$a^2S-w^2P^o$
3650.73	A	7	3.11	6.49	½- ½	(146)
3026.18	A	3wl	3.93	8.01	4½-4½	$z^4F^o-e^4F$ †
3018.53	A	3w	3.86	7.95	3½-3½	(147)
3000.59	A	3w	3.77	7.88	2½-2½	
3024.72	A	3w	3.77	7.85	2½-1½	
2988.74	A	4w	4.13	8.25	2½-2½	$y^2D^o-e^2D$
2966.27	A	2w	4.07	8.23	1½-1½	(148)
3229.73	A	1l	4.43	8.25	1½-2½	$z^2P^o-e^2D$
3278.89	A	2	4.47	8.23	½-1½	(149)

Strongest Unclassified Lines of Zr II

3827.27	A	1	
3423.82	A	3 l	
3068.32	A	2 w	
•3063.63 §	A	3 wl	
3038.59	A	2	
3018.08	A	2 w	
2994.05	A	4 w	

Cb I I P ? Anal C List D July 1942

I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4058.933//	A	2000w	0.13	3.17	4½-5½	$a^6D-y^6F^o$ †
4079.726	A	1000w	0.09	3.11	3½-4½	(1)
4100.918	A	600w	0.05	3.06	2½-3½	
4123.812	A	400	0.02	3.01	1½-2½	
4137.090	A	200	0.00	2.98	½-1½	
4139.702	A	400w	0.13	3.11	4½-4½	
4152.575	A	500	0.09	3.06	3½-3½	
4164.661	A	300	0.05	3.01	2½-2½	
4163.658	A	250	0.02	2.98	1½-1½	
4168.122	A	250w	0.00	2.96	½- ½	
3791.209	A	300r	0.13	3.38	4½-4½	$a^6D-y^6D^o$ †
3824.882	A	100	0.09	3.31	3½-3½	(2)
3713.018	A	300r	0.13	3.45	4½-4½	$a^6D-x^6D^o$ †
3739.80	A	300r	0.09	3.39	3½-3½	(3)
3759.556	A	200r	0.05	3.33	2½-2½	
3790.138	A	200r	0.13	3.39	4½-3½	
3802.928	A	400r	0.09	3.33	3½-2½	
3798.127	A	300r	0.05	3.30	2½-1½	
3787.064	A	150	0.02	3.28	1½- ½	
3697.850	A	200	0.05	3.39	2½-3½	
3728.235	A	250	0.02	3.33	1½-2½	
3742.393	A	200r	0.00	3.30	½-1½	
3580.277	A	400r	0.13	3.58	4½-3½	$a^6D-y^6D^o$ †
3575.850	A	200	0.09	3.54	3½-2½	(4)
•3535.304	A	400w	0.09	3.58	3½-3½	

Cb II I P ? Anal C List C July 1942

I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3094.172//	A	2000wR	0.51	4.50	5-6	$a^5F-z^5G^o$ †
3130.780	A	1500wR	0.44	4.38	4-5	(1)
3163.403	A	1000R	0.37	4.28	3-4	
3194.983	A	700R	0.32	4.19	2-3	
3225.478	A	500wR	0.29	4.12	1-2	
3191.096	A	200w	0.51	4.38	5-5	
3215.595	A	300wr	0.44	4.28	4-4	
3236.403	A	300r	0.37	4.19	3-3	
3254.070	A	200r	0.32	4.12	2-2	
3028.436	A	300w	0.44	4.51	4-3	$a^5F-z^3D^o$ †
3076.864	A	200	0.37	4.39	3-2	(2)
3099.180	A	100	0.32	4.31	2-1	
2982.100	A	100	0.37	4.51	3-3	
3412.934	A	150	0.90	4.51	2-3	$a^3P-z^3D^o$ †
3408.678	A	100	0.76	4.39	1-2	(3)
3409.191	A	100	0.69	4.31	0-1	
3540.961	A	200	1.03	4.51	4-3	$a^3F-z^3D^o$ †
3819.514	A	200	0.98	4.39	3-2	(4)
3651.182	A	300	0.93	4.31	2-1	
3145.405	A	500rs	1.03	4.95	4-5	$a^3F-z^3G^o$ †
3180.290	A	400	0.98	4.88	3-4	(5)
3206.350	A	300rs	0.93	4.76	2-3	
3223.332	A	100	1.03	4.86	4-4	
3247.478	A	150w	0.96	4.78	3-3	
3440.589	A	200	1.38	4.95	5-5	$a^3G-z^3G^o$ †
3479.567	A	150	1.31	4.86	4-4	(6)
3515.421	A	200w	1.27	4.76	3-3	
3425.432	A	300w	1.36	4.97	5-4	$a^3G-z^3F^o$ †
3426.562	A	250w	1.31	4.91	4-3	(7)
3476.79	A	100	1.27	4.61	3-2	
4367.966	A	100n	1.69	4.51	4-3	$b^3F-z^3D^o$ †
4579.448	A	150n	1.69	4.39	3-2	(6)
4527.646	A	50n	1.56	4.31	2-1	

Cb II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3781.379	A	200	1.89	4.95	4-5	$b^3F-z^3G^o$
3898.292	A	200	1.69	4.86	3-4	(9)
3863.056	A	150	1.58	4.78	2-3	
3763.13	A	8n	1.69	4.97	4-4	$b^3F-z^3F^o$
3831.840	A	200	1.69	4.91	3-3	(10)
3818.862	A	200	1.58	4.81	2-2	
3952.367	A	100n	1.69	4.81	3-2	

Strongest Unclassified Lines of Cb II

3717.06	A	300
3659.602	A	300
3510.262	A	400
3432.708	A	400
3283.463	A	400
3263.365	A	300
3260.564	A	350w
3127.526	A	500
3064.530	A	250r
3034.95	A	200wR
3032.767	A	400rs
2994.725	A	300w

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I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3798.259 //	A	50R	0.00	3.25	3-4	$a^7S-z^7P^o$
3864.115	A	50R	0.00	3.19	3-3	(1)
3902.968	A	50R	0.00	3.16	3-2	
3112.125	A	5n	0.00	3.97	3-4	$a^7S-z^7D^o$
3158.156	A	5R	0.00	3.91	3-3	(2)
3208.838	A	10n	0.00	3.85	3-2	
3132.591	A	10R	0.00	3.94	3-4	$a^7S-y^7P^o$
3170.333	A	10R	0.00	3.89	3-3	(3)
3193.969	A	10R	0.00	3.86	3-2	
5506.51	B	40R	1.33	3.57	2-3	$a^5S-z^5P^o$
5533.01	B	30R	1.33	3.56	2-2	(4)
5570.46	B	25R	1.33	3.54	2-1	
6030.66	B	9	1.52	3.57	4-3	$a^5D-z^5P^o$
5888.32	B	6	1.46	3.56	3-2	(5)
5791.86	B	6	1.41	3.54	2-1	
5858.28	B	7	1.46	3.57	3-3	
5751.41	B	6	1.41	3.56	2-2	
5689.22	B	7	1.38	3.54	1-1	
4626.467	A	10	1.52	4.19	4-3	$a^5D-y^5P^o$
4662.767	A	5	1.46	4.11	3-2	(6)
4661.933	A	5	1.41	4.06	2-1	
4524.344	A	10	1.46	4.19	3-3	
4576.500	A	10	1.41	4.11	2-2	
4595.160	A	10	1.38	4.06	1-1	
4277.246	A	12	1.52	4.41	4-5	$a^5D-z^5F^o$
4288.85	A	5n	1.46	4.34	3-4	(7)
4293.228	A	10	1.41	4.29	2-3	
3833.757	A	10n	1.52	4.74	4-4	$a^5D-z^5D^o$
3828.883	A	10	1.46	4.69	3-3	(8)
3826.701	A	10	1.41	4.64	2-2	
3822.987	A	5	1.38	4.60	1-1	
3901.775	A	10	1.52	4.69	4-3	
3886.325	A	(3)	1.46	4.64	3-2	
3869.085	A	10	1.41	4.60	2-1	
3847.252	A	10	1.38	4.58	1-0	
3763.356	A	5	1.46	4.74	3-4	
3770.517	A	8	1.41	4.69	2-3	
3761.597	A	10	1.38	4.64	1-2	
3405.934	A	10r	1.52	5.15	4-5	$a^5D-y^5F^o$
3384.617	A	10n	1.46	5.11	3-4	(9)
3358.130	A	10	1.41	5.09	2-3	
3344.750	A	10	1.38	5.07	1-2	
3327.308	A	10r	1.35	5.06	0-1	
3361.371	A	10r	1.52	5.20	4-4	a^5D-8° † (10)
3289.016	A	10r	1.41	5.17	2-3	a^5D-7° † (11)
4012.51	C	(1)	2.07	5.15	6-5	$a^5G-y^5F^o$ †
4062.09	A	5Nr	2.07	5.11	5-4	(12)
4064.391	A	10n	2.07	5.09	4-3	
4107.477	A	8r	2.06	5.07	3-2	
4102.158	A	10	2.05	5.06	2-1	
4056.027	A	10	2.07	5.11	4-4	

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I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3446.085	A	6	2.94	6.52	4½-4½	$^4F-{}^4F^o$
3524.646	A	8	2.94	6.45	3½-3½	(1)
3596.351	A	4	2.95	6.39	2½-2½	
3670.868	A	3	2.98	6.34	1½-1½	
3522.063	A	2	2.94	6.45	4½-3½	
3585.91	B	2n	2.94	6.39	3½-2½	
3643.47	A	2	2.95	6.34	2½-1½	
3448.542	A	2	2.94	6.52	3½-4½	
3534.888	A	3	2.95	6.45	2½-3½	
3622.850	A	2	2.96	6.39	1½-2½	
3136.465	A	4	2.94	6.88	4½-3½	$^4F-{}^4D^o$ †
3167.592	A	4	2.94	6.62	3½-2½	(2)
3250.747	A	3	2.95	6.75	2½-1½	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Mo II continued						
4250.689	A	10	3.13	6.03	3½-2½	$^4D-\ ^4P^\circ$ †
4363.644	A	10	3.10	5.93	2½-1½	(3)
4433.501	A	8	3.04	5.83	1½- ½	
4209.649	A	5	3.10	6.03	2½-2½	
4379.023	A	10	3.04	5.93	1½-1½	
4377.765	A	10	3.01	5.83	½- ½	
3941.478	A	10	3.13	6.26	3½-4½	$^4D-\ ^6P^\circ$ †
3961.503	A	15	3.13	6.24	3½-3½	(4)
3986.201	A	6	3.10	6.20	2½-1½	
3635.144	A	20	3.13	6.52	3½-4½	$^4D-\ ^4F^\circ$ †
3688.307	A	15	3.10	6.45	2½-3½	(5)
3692.645	A	10	3.04	6.39	1½-2½	
3702.553	A	8	3.01	6.34	½-1½	
3719.74	A	3	3.13	6.45	3½-3½	
3755.54	A	5	3.10	6.39	2½-2½	
3742.34	A	6	3.04	6.34	1½-1½	
3292.312	A	12	3.13	6.88	3½-3½	$^4D-\ ^4D^\circ$
3320.902	A	5	3.10	6.82	2½-2½	(6)
3329.315	A	5	3.04	6.75	1½-1½	
3347.369	A	3	3.01	6.70	½- ½	
3346.403	A	4	3.13	6.82	3½-2½	
3320.315	A	3	3.10	6.75	2½-1½	
3379.762	A	3	3.04	6.70	1½- ½	
3267.639	A	3	3.10	6.88	2½-3½	
3271.686	A	4	3.04	6.82	1½-2½	
3297.684	A	3	3.01	6.75	½-1½	

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3799.347	A	(8)	0.00	3.25	5-4	$a^5F-z^5D^\circ$ †
3798.901	A	(8)	0.15	3.40	4-3?	(1)
3728.030	A	(10R)	0.00	3.31	5-5	$a^5F-z^5F^\circ$ †
3726.926	A	(10R)	0.15	3.46	4-4	(2)
3730.433	A	(4)	0.26	3.57	3-3	
3742.280	A	(10)	0.33	3.63	2-2	
3760.031	A	(4)	0.38	3.67	1-1	
3661.353	A	(6)	0.15	3.52	4-5	$a^5F-z^3G^\circ$ †
3417.353	A	(20)	0.26	3.87	3-4	(3)
3430.772	A	(7)	0.33	3.93	2-3	
3498.942//	A	(50R)	0.00	3.53	5-6	$a^5F-z^5G^\circ$ †
3436.737	A	(30R)	0.15	3.74	4-5	(4)
3596.179	A	(20)	0.26	3.69	3-4	
3593.022	A	(20)	0.33	3.77	2-3	
3589.215	A	(5)	0.38	3.82	1-2	
3301.587	A	(8)	0.00	3.74	5-5	
4554.509	A	(10R)	0.81	3.52	4-5	$a^3F-z^3G^\circ$ †
4297.711	A	(10)	1.00	3.87	3-4	(5)
4410.026	A	(8)	1.13	3.93	2-3	
4212.063	A	(10)	0.81	3.74	4-5	$a^3F-z^5G^\circ$ †
4584.445	A	30	1.00	3.69	3-4	(6)
4681.786	A	10	1.13	3.77	2-3	
4080.600	A	(20)	0.81	3.83	4-3	$a^3F-y^5F^\circ$ †
4144.164	A	(10)	1.00	3.98	3-2	(7)
4199.902	A	(10)	0.81	3.75	4-4	$a^3F-z^3F^\circ$ †
						(8)
3867.839	A	(8)	0.81	4.00	4-3	$a^3F-z^3D^\circ$ †
3984.858	A	(10)	1.00	4.10	3-2	(9)
4097.791	A	(10)	1.13	4.15	2-1	
5309.267	A	20	0.92	3.25	4-4	$a^5D-z^5D^\circ$ †
5636.235	A	35	1.06	3.25	3-4	(10)
5155.136	A	12	1.12	3.51	1-2	
5171.028	A	40	0.92	3.31	4-5	$a^5D-z^5F^\circ$ †
5142.763	A	8	1.06	3.46	3-4	(11)
5040.744	A	6	1.12	3.57	2-3	
4911.593	A	3	1.12	3.63	1-2	
4869.153	A	25	0.92	3.46	4-4	
4931.074	A	12	1.06	3.57	3-3	
4907.888	A	8	1.12	3.63	2-2	
4669.977	A	8	0.92	3.57	4-3	
4757.841	A	20	0.92	3.52	4-5	$a^5D-z^3G^\circ$ †
						(12)
4372.208	A	(10)	0.92	3.75	4-4	$a^5D-z^3F^\circ$ †
						(13)
4709.484	A	35	1.13	3.75	4-4	$b^3F-z^3F^\circ$ †
						(14)

Ru II I P ? Anal D List C Sept 1942

3690.032	A	80	2.39	5.74	3½-4½	$^4D-\ ^6D^\circ$ †
3657.574	A	50	2.39	5.77	3½-3½	(1)
3734.454	A	25	2.53	5.84	2½-2½	
3777.919	A	10	2.62	5.89	1½-1½	
3177.060	A	100	2.39	6.28	3½-4½	$^4D-\ ^6F^\circ$ †
3294.220	A	80	2.53	6.28	2½-3½	(2)
3339.810	A	50	2.62	6.32	1½-2½	
3369.295	A	25	2.67	6.34	½-1½	
3175.317	A	10	2.39	6.28	3½-3½	
3143.657	A	15	2.39	6.32	3½-2½	
3107.586	A	10	2.39	6.36	3½-3½	$^4D-\ ^6P^\circ$ †
3094.555	A	8	2.53	6.52	2½-2½	(3)
3221.378	A	15	2.53	6.36	2½-3½	
2976.593	A	100	2.39	6.54	3½-4½	$^4D-\ ^4F^\circ$ †
2965.564	A	100	2.53	6.69	2½-3½	(4)
2979.957	A	60	2.62	6.76	1½-2½	
2977.226	A	30	2.67	6.82	½-1½	
2979.726	A	40	2.53	6.67	2½-2½	$^4D-\ ^4D^\circ$ †
2991.626	A	40	2.62	6.75	1½-1½	(5)
2998.896	A	20	2.67	6.79	½- ½	
3259.007?	A	20	2.75	6.54	3½-4½	$^2F-\ ^4F^\circ$ †
3060.252	A	8	2.66	6.69	2½-3½	(6)
3221.978	A	20	2.75	6.58	3½-3½	$^2F-\ ^4D^\circ$ †
3075.336	A	6	2.66	6.67	2½-2½	(7)

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3692.357	A	50	0.00	3.34	4½-3½	$a^4F-z^4D^\circ$ †
3657.987	A	50	0.19	3.56	3½-2½	(1)
3596.194	A	20	0.32	3.75	2½-1½	
3612.470	A	15	0.43	3.85	1½- ½	
3434.893//	A	200R	0.00	3.59	4½-5½	$a^4F-z^4G^\circ$ †
3700.909	A	30	0.19	3.52	3½-4½	(2)
3507.316	A	20	0.32	3.84	2½-3½	
3474.780	A	20	0.43	3.98	1½-2½	
3502.524	A	50	0.00	3.52	4½-4½	
3396.85	A	100R	0.00	3.83	4½-4½	$a^4F-z^4F^\circ$ †
3528.024	A	30	0.19	3.69	3½-3½	(3)
3462.040	A	30	0.32	3.89	2½-2½	
3470.657	A	20	0.43	3.98	1½-1½	
3583.098	A	10	0.19	3.63	3½-4½	
3666.215	A	15	0.32	3.69	2½-3½	
3323.092	A	50R	0.19	3.90	3½-4½	$a^4F-z^2G^\circ$ †
3283.573	A	20R	0.32	4.08	2½-3½	(4)
3597.147	A	20	0.41	3.84	2½-3½	$a^2D-z^4G^\circ$ †
						(5)
3478.906	A	15	0.41	3.96	2½-2½	$a^2D-z^2D^\circ$
3543.948	A	10	0.70	4.18	1½-1½	(6)
3271.612	A	10	0.41	4.18	2½-1½	
3788.474	A	15	0.70	3.96	1½-2½	
3856.515	A	10	0.70	3.90	3½-4½	$a^2F-z^2G^\circ$ †
3958.865	A	30	0.96	4.08	2½-3½	(7)
3799.311	A	20	0.70	3.95	3½-3½	$a^2F-z^2F^\circ$
3822.262	A	15	0.96	4.19	2½-2½	(8)
4128.870	A	20	0.96	3.95	2½-3½	
3538.142	A	4	0.70	4.19	3½-2½	
3793.217	A	15	0.70	3.96	3½-2½	$a^2F-z^2D^\circ$
3833.889	A	10	0.96	4.18	2½-1½	(9)
4121.682	A	15	0.96	3.96	2½-2½	

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3207.297	A	250	3.13	6.98	4-4	$^3F-\ ^5D^\circ$ †
3028.608	A	75	3.39	7.46	3-3	(1)
3074.061	A	50	3.56	7.57	2-2	
3434.57	P		3.39	6.98	3-4	
3162.284	A	100	3.56	7.46	2-3	
3159.254	A	200	3.13	7.04	4-5	$^3F-\ ^5F^\circ$ †
3151.500	A	75	3.39	7.30	3-4	(2)
3386.129	A	2	3.56	7.20	2-3	
3233.324	A	250	3.39	7.20	3-3	
3239.101	A	30	3.56	7.37	2-2	
3019.819	A	150	3.56	7.65	2-3	$^3F-\ ^5G^\circ$ †
2988.367	A	50	3.56	7.69	2-2	(3)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Rh II continued						
3477.828	A	200	3.43	6.98	3-4	$^5P-\ ^5D^\circ$
3093.481	A	200	3.47	7.46	2-3	(4)
3096.740	A	150	3.59	7.57	1-2	
3062.201	A	100	3.43	7.46	3-3	
3008.996	A	200	3.47	7.57	2-2	
3047.160	A	200	3.59	7.64	1-1	
2979.382	A	2	3.43	7.57	3-2	
2962.167	A	75	3.47	7.64	2-1	
3035.013	A	200	3.59	7.66	1-0	
3187.889	A	200	3.43	7.30	3-4	$^5P-\ ^5F^\circ$
3307.362	A	200	3.47	7.20	2-3	(5)
3264.291	A	75	3.59	7.37	1-2	
3166.948	A	200	3.47	7.37	2-2	
3173.678	A	100	3.59	7.48	1-1	
3081.585	A	100	3.47	7.48	2-1	
3267.480	A	250	3.92	7.69	5-4	$^3G-\ ^3F^\circ$
3240.516	A	150	4.03	7.83	4-3	(8)
3211.947	A	150	4.18	8.02	3-2	
3815.012	A	100	4.23	7.46	2-3	$^3P-\ ^5D^\circ$
3754.12	P		4.29	7.57	1-2	(7)
3720.69	P		4.32	7.64	0-1	
3269.60	P		4.23	8.00	2-3	$^3P-\ ^3D^\circ$
3188.603	A	150	4.29	8.16	1-2	(8)
3147.931	A	8	4.32	8.24	0-1	
3140.272	A	50	4.23	8.16	2-2	
3119.837	A	5	4.29	8.24	1-1	

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3634.71	B	700R	0.81	4.21	3-2	$5s^3D-5p^3P^\circ$
3518.95	A	500r	0.96	4.47	2-1	(1)
3571.16	A	200	1.25	4.70	1-0	
3799.17	B	75	0.96	4.21	2-2	
3832.31	B	75	1.25	4.47	1-1	
3404.60 //	A	1000R	0.81	4.44	3-4	$5s^3D-5p^3F^\circ$
3609.56	A	600R	0.96	4.38	2-3	(2)
3481.17	A	400r	1.25	4.79	1-2	
3460.76	A	300r	0.81	4.38	3-3	
3218.98	A	20	0.96	4.79	2-2	
3242.72	A	1000R	0.81	4.62	3-3	$5s^3D-5p^3D^\circ$
3421.24	A	500	0.96	4.56	2-2	(3)
3302.15	A	400	1.25	4.98	1-1	
3287.26	A	50	0.81	4.56	3-2	
3065.30	A	100	0.96	4.98	2-1	
3373.02	A	300	0.96	4.62	2-3	
3718.92	B	100	1.25	4.56	1-2	
3002.86	A	50	0.81	4.92	3-3	$5s^3D-5p^1F^\circ$
3114.05	A	200	0.96	4.92	2-3	(4)
3027.92	A	100	0.96	5.03	2-2	$5s^3D-5p^1D^\circ$ †
3258.80	A	300	1.25	5.03	1-2	(5)
3021.74	A	10	0.96	5.04	2-1	$5s^3D-5p^1P^\circ$
3251.66	A	200	1.25	5.04	1-1	(6)
4212.95	B	200	1.45	4.38	2-3	$5s^1D-5p^3F^\circ$
3690.35	B	200	1.45	4.79	2-2	(7)
3894.19	B	200	1.45	4.62	2-3	$5s^1D-5p^3D^\circ$
3958.66	B	200	1.45	4.56	2-2	(8)
3489.79	A	200r	1.45	4.98	2-1	
3553.10	A	500r	1.45	4.92	2-3	$5s^1D-5p^1F^\circ$
						(9)
3441.40	A	300	1.45	5.03	2-2	$5s^1D-5p^1D^\circ$
						(10)
3433.44	A	250	1.45	5.04	2-1	$5s^1D-5p^1P^\circ$
						(11)

Pd II See introduction

Ag I I P 7.54 Anal A List C May 1942

3280.682//	A	1000R	0.00	3.76	½-1½	$5^2S-5^2P^\circ$
3382.890	A	1000R	0.00	3.65	½- ½	(1)
8273.519	A	1000	3.76	5.25	1½- ½	$5^2P^\circ-6^2S$
7687.779	A	500	3.65	5.25	½- ½	(2)

Ag II See introduction

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Cd I I P 8.96 Anal A List D Aug 1942						
3261.050	A	10R	0.00	3.78	0-1	$5^15-5^3P^o$ (1)
5085.824	A	100R	3.93	6.36	2-1	$5^3P^o-6^35$ (2)
4799.918	A	100R	3.78	6.36	1-1	
4678.160	A	50	3.72	6.36	0-1	
6438.4696	B	100	5.39	7.31	1-2	$5^1P^o-5^1D$ (3)
Cd II See introduction						
In I I P 5.76 Anal A List D Aug 1942						
4511.310//	A	10	0.27	3.01	1½- ½	$5^2P^o-6^2S$
4101.764	A	10	0.00	3.01	½- ½	(1)
In II See introduction						
Sn I I P 7.30 Anal A List D Aug 1942						
3009.136	A	700R	0.21	4.31	1-1	$5p^3P-6s^3P^o$ †
3175.046//	A	2000R	0.42	4.31	2-1	(1)
3034.120	A	900R	0.21	4.28	1-0	
3330.620	A	500r	1.06	4.77	2-2	$5p^1D-6s^3P^o$
3801.022	A	2000R	1.06	4.31	2-1	(2)
3262.340	A	2500R	1.06	4.85	2-1	$5p^1D-6s^1P^o$ (3)
5631.707	A	500	2.12	4.31	0-1	$5p^1S-6s^3P^o$ (4)
4524.744	A	1000	2.12	4.85	0-1	$5p^1S-6s^1P^o$ (5)
Sn II I P 14.57 Anal A List D Aug 1942						
6453.50	A	70	7.02	8.93	½-1½	$6^2S-6^3P^o$
6844.05	A	25	7.02	8.83	½- ½	(1)
3351.97	A	60	7.34	11.02	2½-3½	$p^2\ ^2D-4^2F^o$
3283.21	A	50	7.26	11.02	1½-2½	(2)
Sb I I P 8.64 Anal A List D Sept 1942						
3347.10	A	5	2.28	5.97	1½-2½	$5p^2P^o-6s^4P$
3383.15	A	100	2.02	5.67	½-1½	(1)
3637.83	A	250	2.28	5.67	1½-1½	
3722.79	A	200r	2.02	5.34	½- ½	
4033.55	A	200	2.28	5.34	1½- ½	
3232.52	A	600r	2.28	6.10	1½-1½	$5p^2P^o-6s^2P$
3267.51	A	700r	2.02	5.80	½- ½	(2)
3504.48	A	50	2.28	5.80	1½- ½	
3029.83	A	500r	2.02	6.10	½-1½	
Sb II See introduction						
Te I I P 8.96 Anal B List D June 1942						
9722.88	A	100	5.46	6.73	2-3	$6^55^o-6^5P$
10051.55	A	50	5.46	6.69	2-2	(1)
10091.12	A	25	5.46	6.69	2-1	
I I See introduction						
I II See introduction						
Xe I See introduction						
Xe II See introduction						
Cs I I P 3.88 Anal A List D Nov 1942						
8521.10 //	A	4000R	0.00	1.45	½-1½	$6^2S-6^2P^o$
8943.50	A	2000R	0.00	1.38	½- ½	(1)
4555.421	B	(2000R)	0.00	2.71	½-1½	$6^2S-7^2P^o$
4593.195	B	(1000R)	0.00	2.69	½- ½	(2)
Cs II See introduction						
Ba I I P 5.19 Anal A List C Nov 1942						
7911.338	A	(200)	0.00	1.56	0-1	$6^1S-6^3P^o$ (1)
5535.484//	A	1000R	0.00	2.23	0-1	$6^1S-6^1P^o$ (2)
3501.107	A	200R	0.00	3.53	0-1	$6^1S-5d6p^1P^o$ (3)
3071.583	A	100R	0.00	4.02	0-1	$6^1S-7^1P^o$ (4)
7059.941	A	(2000)	1.18	2.93	3-4	$5^3D-5d6p^3F^o$ †
7280.298	A	(1000)	1.14	2.83	2-3	(5)
7673.092	A	(600)	1.12	2.72	1-2	
7488.083	A	(200)	1.18	2.83	3-3	
7780.479	A	(400)	1.14	2.72	2-2	
6498.759	A	300r	1.18	3.08	3-3	$5^3D-5d6p^3D^o$
6527.312	A	250	1.14	3.03	2-2	(6)
6595.326	A	200	1.12	2.99	1-1	
6693.842	A	70	1.18	3.03	3-2	
6675.271	A	80	1.14	2.99	2-1	
6341.682	A	150	1.14	3.08	2-3	
6450.854	A	125	1.12	3.03	1-2	
6110.784	A	300r	1.18	3.20	3-2	$5^3D-5d6p^3P^o$ †
6063.117	A	200	1.14	3.17	2-1	(7)
6019.470	A	100	1.12	3.17	1-0	
5971.699	A	100	1.14	3.20	2-2	
5997.088	A	100	1.12	3.17	1-1	
3993.401	A	80	1.18	4.28	3-4	$5^3D-4^3F^o$
3935.717	A	50	1.14	4.27	2-3	(8)
3909.910	A	40	1.12	4.27	1-2	
3995.656	A	30	1.18	4.27	3-3	
3937.870	A	20	1.14	4.27	2-2	
5777.622	A	400r	1.67	3.80	2-3	$6^3P^o-6^3D$ †
5519.047	A	200	1.56	3.80	1-2	(9)
5424.551	A	100	1.51	3.79	0-1	
5800.229	A	100	1.67	3.80	2-2	
7905.751	A	500	1.67	3.23	2-1	$6^3P^o-7^3S$
7392.411	A	400	1.56	3.23	1-1	(10)
7195.235	A	200	1.51	3.23	0-1	
Ba II I P 9.96 Anal A List B Nov 1942						
4554.033//	A	1000R	0.00	2.71	½-1½	$6^2S-6^2P^o$
4934.086	B	700R	0.00	2.50	½- ½	(1)
6141.718	A	600r	0.70	2.71	2½-1½	$5^2D-6^2P^o$
6496.896	A	600r	0.60	2.50	1½- ½	(2)
5853.675	A	200	0.60	2.71	1½-1½	
4899.934	A	35	2.71	5.23	1½- ½	$6^2P^o-7^25$
4524.928	A	35	2.50	5.23	½- ½	(3)
4130.648	A	80	2.71	5.70	1½-2½	$6^2P^o-6^2D$
3891.781	A	50	2.50	5.67	½-1½	(4)
4166.003	A	20	2.71	5.67	1½-1½	
8710.82	C	(3n)	5.70	7.11	2½-3½	$6^2D-5^2F^o$
8737.74	C	(3n)	5.67	7.08	1½-2½	(5)
5391.60	D	(10)	5.70	7.99	2½-3½	$6^2D-6^2F^o$
5361.35	D	(8)	5.67	7.97	1½-2½	(6)
5421.05	D	(2)	5.70	7.97	2½-2½	
4326.74	D	(2)	5.70	8.55	2½-3½	$6^2D-7^2F^o$
4297.80	D	(2)	5.87	8.54	1½-2½	(7)
6874.09	D	(10)	5.99	7.78	3½-	$4^2F^o-5^2G$
6769.62	D	(10)	5.96	7.78	2½-	(8)
5480.30	D	(3)	5.99	8.24	3½-2½	$4^2F^o-8^2D$
5428.79	D	(2)	5.96	8.23	2½-1½	(9)
Ba II continued						
5013.00	D	(10)	5.99	8.45	3½-	4^2F^o-6
4957.15	D	(10)	5.96	8.45	2½-	(10)
4309.32	D	(8)	5.99	8.85	3½-	4^2F^o-7
4267.95	D	(8)	5.96	8.85	2½-	(11)
6378.91	D	(5)	6.17	8.11	1½- ½	7^2P^o-9
6135.83	D	(4)	6.10	8.11	½- ½	(12)
5981.25	D	(8)	6.17	8.24	1½-2½	7^2P^o-8
5784.18	D	(8)	6.10	8.23	½-1½	(13)
5999.85	D	(3)	6.17	8.23	1½-1½	
4997.81	D	(3)	6.17	8.64	1½- ½	7^2P^o-1
4847.14	D	(3)	6.10	8.64	½- ½	(14)
4843.46	D	(8)	6.17	8.72	1½-2½	7^2P^o-9
4708.94	D	(8)	6.10	8.72	½-1½	(15)
4850.84	D	(2)	6.17	8.72	1½-1½	
4405.23	D	(4)	6.17	8.98	1½- ½	7^2P^o-1
4287.80	D	(3)	6.10	8.98	½- ½	(16)
4325.73	D	(6)	6.17	9.03	1½-2½	7^2P^o-1
4216.04	D	(5)	6.10	9.02	½-1½	(17)
4329.62	D	(3)	6.17	9.02	1½-1½	
La I I P 5.59 Anal A List C Nov 1942						
6455.99	A	300	0.13	2.04	2½-3½	a^2D-z^2
6578.51	A	400	0.00	1.88	1½-2½	(1)
7068.37	A	100	0.13	1.88	2½-2½	
5930.61	A	(200)	0.13	2.21	2½-3½	a^2D-y^2
5930.68	A	(100)	0.00	2.08	1½-2½	(2)
6325.90	A	150	0.13	2.08	2½-2½	
5455.14	A	400	0.13	2.39	2½-2½	a^2D-y^2
5501.34	A	300	0.00	2.24	1½-1½	(3)
5271.18	A	150	0.13	2.47	2½-1½	a^2D-y^3
4949.76	A	200	0.00	2.49	1½- ½	(4)
4280.27	A	100	0.13	3.01	2½-3½	a^2D-w^2
4187.31	A	125	0.00	2.95	1½-2½	(5)
6709.49	A	200	0.37	2.21	2½-3½	a^4F-y^2
7045.96	A	300d?	0.33	2.08	1½-2½	(6)
6249.92 //	A	500	0.51	2.48	4½-5½	a^4F-z^4
6394.23	A	600	0.43	2.36	3½-4½	(7)
6410.98	A	300	0.37	2.30	2½-3½	
6543.17	A	500d	0.33	2.22	1½-2½	
5791.32	A	400d?	0.51	2.64	4½-4½	a^4F-y^4
5789.22	A	250d?	0.43	2.56	3½-3½	(8)
5769.32	A	80	0.37	2.51	2½-2½	
5740.65	A	100	0.33	2.48	1½-1½	
5211.85	A	300d	0.51	2.88	4½-3½	a^4F-y^4
5177.30	A	300d	0.43	2.82	3½-2½	(9)
5145.42	A	200	0.37	2.77	2½-1½	
5106.23	A	150d	0.33	2.75	1½- ½	
5234.27	A	300d	0.51	2.87	4½-3½	a^4F-1° † (10)
4570.02	A	250	0.51	3.21	4½-4½	a^4F-x^4F
4567.90	A	200	0.43	3.13	3½-3½	(11)
4549.50	A	50	0.37	3.08	2½-2½	
4494.71	A	30	0.33	3.08	1½-1½	
La II I P 11.38 Anal A List B Nov 1942						
7282.36	A	150	0.24	1.94	4-4	a^3F-z^3F
7483.48	A	30	0.13	1.77	3-3	(1)
7066.24	A	300	0.00	1.75	2-2	
6808.88	A	30	0.13	1.94	3-4	
6954.54	A	20	0.00	1.77	2-3	
6774.28	A	100	0.13	1.95	3-3	a^3F-z^1F (2)
6834.07	A	20	0.24	2.05	4-4	a^3F-z^1G (3)
5797.57	A	150	0.24	2.37	4-4	a^3F-y^3F
5805.77	A	120	0.13	2.25	3-3	(4)
5808.31	A	80	0.00	2.12	2-2	
6146.53	A	15	0.24	2.25	4-3	
6172.72	A	10	0.13	2.12	3-2	
5493.45	A	20	0.13	2.37	3-4	
5482.27	A	40	0.00	2.25	2-3	

La II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
6305.46	A	10	0.24	2.20	4-4	$a^3F-z^3H^o$ (5)
5290.83	A	50	0.00	2.33	2-2	$a^3F-z^1D^o$ † (6)
4921.80	A	300	0.24	2.75	4-5	$a^3F-z^3G^o$ (7)
4920.98	A	300	0.13	2.63	3-4	
4899.92	A	200	0.00	2.52	2-3	
5163.61	A	40	0.24	2.63	4-4	
5156.74	A	40	0.13	2.52	3-3	
5423.82	A	4	0.24	2.52	4-3	
4860.90	A	80	0.24	2.78	4-3	$a^3F-z^3D^o$ (8)
4740.27	A	120	0.13	2.73	3-2	
4662.51	A	200	0.00	2.65	2-1	
4645.28	A	100	0.13	2.78	3-3	
*4522.37	A	400	0.00	2.73	2-2	
4435.84	A	10	0.00	2.78	2-3	
4300.44	A	60	0.00	2.87	2-2	$a^3F-z^3P^o$ † (9)
4086.72	A	300	0.00	3.02	2-2	$a^3F-y^1D^o$ (10)
4432.95	A	20?	0.24	3.03	4-3	$a^3F-y^1F^o$ † (11)
4076.71	A	40	0.00	3.03	2-3	
3794.78	A	400	0.24	3.50	4-3	$a^3F-y^3D^o$ (12)
3790.83	A	300	0.13	3.38	3-2	
3849.02	A	100	0.00	3.21	2-1	
3662.08	A	30	0.13	3.50	3-3	
3650.19	A	80	0.00	3.38	2-2	
3530.67	A	8	0.00	3.50	2-3	
3759.08	A	300	0.24	3.53	4-4	$a^3F-x^3F^o$ (13)
3871.64	A	200	0.13	3.31	3-3	
3784.81	A	15	0.00	3.26	2-2	
3936.22	A	50	0.13	3.26	3-2	
3628.83	A	60	0.13	3.53	3-4	
3725.05	A	20	0.00	3.31	2-3	
3645.43	A	200	0.00	3.39	2-1	$a^3F-z^1P^o$ (14)
3510.00	A	15	0.13	3.64	3-2	$a^3F-y^3P^o$ (15)
3550.82	A	6	0.00	3.48	2-1	
3108.46	A	8	0.00	3.97	2-1	$a^3F-x^3P^o$ (16)
3306.98	A	8	0.24	3.98	4-3	$a^3F-x^1F^o$ † (17)
3104.58	A	50	0.00	3.98	2-3	
6952.52	A	10	0.17	1.95	2-3	$a^1D-z^1F^o$ (18)
5936.22	A	20	0.17	2.25	2-3	$a^1D-y^3F^o$ (19)
6320.39	A	200	0.17	2.12	2-2	
5712.39	A	20	0.17	2.33	2-2	$a^1D-z^1D^o$ (20)
5259.38	A	50	0.17	2.52	2-3	$a^1D-z^3G^o$ (21)
4728.41	A	100	0.17	2.78	2-3	$a^1D-z^3D^o$ (22)
4828.87	A	20	0.17	2.73	2-2	
4986.82	A	100	0.17	2.65	2-1	
4574.87	A	200	0.17	2.87	2-2	$a^1D-z^3P^o$ (23)
4691.17	A	50	0.17	2.80	2-1	
4333.76	A	500	0.17	3.02	2-2	$a^1D-y^1D^o$ (24)
4322.51	A	100	0.17	3.03	2-3	$a^1D-y^1F^o$ (25)
3713.54	A	100	0.17	3.50	2-3	$a^1D-y^3D^o$ (26)
3846.00	A	20	0.17	3.38	2-2	
4067.39	A	100	0.17	3.21	2-1	
3929.22	A	300	0.17	3.31	2-3	$a^1D-x^3F^o$ (27)
3995.74	A	400	0.17	3.26	2-2	
3840.72	A	60	0.17	3.39	2-1	$a^1D-z^1P^o$ (28)
3557.26	A	8	0.17	3.64	2-2	$a^1D-y^3P^o$ (29)
3735.85	A	10	0.17	3.48	2-1	
3452.18	A	40	0.17	3.75	2-1	$a^1D-y^1P^o$ (30)
3142.76	A	40	0.17	4.10	2-2	$a^1D-x^3P^o$ (31)
3249.35	A	80	0.17	3.97	2-1	
3245.13	A	150	0.17	3.98	2-3	$a^1D-x^1F^o$ (32)
6262.30	A	300	0.40	2.37	3-4	$a^3D-y^3F^o$ (33)
6390.48	A	200	0.32	2.25	2-3	
6526.99	A	200	0.23	2.12	1-2	
6671.41	A	40	0.40	2.25	3-3	
6837.91	A	15	0.32	2.12	2-2	
6859.03	A	5	0.40	2.20	3-4	$a^3D-z^3H^o$ (34)

La II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
5880.63	A	50	0.23	2.33	1-2	$a^3D-z^1D^o$ † (35)
5183.42	A	400	0.40	2.78	3-3	$a^3D-z^3D^o$ (36)
5122.99	A	200	0.32	2.73	2-2	
5114.55	A	200	0.23	2.65	1-1	
5301.97	A	200	0.40	2.73	3-2	
5303.54	A	100	0.32	2.65	2-1	
4946.47	A	50	0.23	2.73	1-2	
4999.46	A	200	0.40	2.87	3-2	$a^3D-z^3P^o$ (37)
4970.39	A	100	0.32	2.80	2-1	
4809.00	A	100	0.23	2.80	1-0	
4840.02	A	30	0.32	2.87	2-2	
4804.04	A	80	0.23	2.80	1-1	
4682.12	A	~ 5	0.23	2.87	1-2	
4712.92	A	40	0.40	3.02	3-2	$a^3D-y^1D^o$ (38)
4570.97	A	10	0.32	3.02	2-2	
4429.90	A	400	0.23	3.02	1-2	
4699.62	A	50	0.40	3.03	3-3	$a^3D-y^1F^o$ (39)
4558.46	A	200	0.32	3.03	2-3	
3988.51	A	500	0.40	3.50	3-3	$a^3D-y^3D^o$ (40)
4031.68	A	300	0.32	3.38	2-2	
4151.98	A	250	0.23	3.21	1-1	
4141.73	A	200	0.40	3.38	3-2	
4275.64	A	100	0.32	3.21	2-1	
3886.37	A	150	0.32	3.50	2-3	
3921.54	A	200	0.23	3.38	1-2	
3949.10 //	A	600	0.40	3.53	3-4	$a^3D-x^3F^o$ (41)
4123.23	A	400	0.32	3.31	2-3	
4077.35	A	300	0.23	3.26	1-2	
4238.38	A	400	0.40	3.31	3-3	
4196.55	A	250	0.32	3.26	2-2	
4315.90	A	30	0.40	3.26	3-2	
4025.87	A	50	0.32	3.39	2-1	$a^3D-z^1P^o$ (42)
3916.05	A	300	0.23	3.39	1-1	
3808.79	A	15	0.40	3.64	3-2	$a^3D-y^3P^o$ † (43)
3910.81	A	10 l	0.32	3.48	2-1	
3715.53	A	50	0.32	3.64	2-2	
3601.07	A	20nl	0.32	3.75	2-1	$a^3D-y^1P^o$ (44)
3512.93	A	10	0.23	3.75	1-1	
3337.49	A	300	0.40	4.10	3-2	$a^3D-x^3P^o$ (45)
3380.91	A	300	0.32	3.97	2-1	
3344.56	A	200	0.23	3.92	1-0	
3265.67	A	600	0.32	4.10	2-2	
3303.11	A	150	0.23	3.97	1-1	
3193.02	A	25	0.23	4.10	1-2	
3453.17	A	50	0.40	3.98	3-3	$a^3D-x^1F^o$ (46)
3376.33	A	50	0.32	3.98	2-3	
6129.57	A	50	0.77	2.78	2-3	$a^3P-z^3D^o$ (47)
6100.37	A	30	0.71	2.73	1-2	
6174.15	A	6	0.65	2.65	0-1	
*6296.08	A	300	0.77	2.73	2-2	
6358.12	A	30	0.71	2.65	1-1	
6570.96	A	?	0.77	2.65	2-1	
5874.00	A	6	0.77	2.87	2-2	$a^3P-z^3P^o$ † (48)
6067.13	A	6	0.77	2.80	2-1	
5892.66	A	4	0.71	2.80	1-0	
5703.32	A	20	0.71	2.87	1-2	
5727.29	A	20	0.65	2.80	0-1	
5464.37	A	25	0.77	3.03	2-3	$a^3P-y^1F^o$ (49)
4526.12	A	200	0.77	3.50	2-3	$a^3P-y^3D^o$ (50)
4613.38	A	200	0.71	3.38	1-2	
4824.05	A	100	0.65	3.21	0-1	
4724.42	A	40	0.77	3.38	2-2	
4935.61	A	10	0.71	3.21	1-1	
5062.91	A	20	0.77	3.21	2-1	
*4850.58	A	30	0.77	3.31	2-3	$a^3P-x^3F^o$ (51)
4830.51	A	10	0.71	3.26	1-2	
4716.44	A	80	0.77	3.39	2-1	$a^3P-z^1P^o$ (52)
4605.78	A	100	0.71	3.39	1-1	
4508.48	A	10	0.65	3.39	0-1	
4296.05	A	300	0.77	3.64	2-2	$a^3P-y^3P^o$ (53)
4455.79	A	50	0.71	3.48	1-1	
4559.28	A	100	0.77	3.48	2-1	
4580.05	A	150	0.71	3.40	1-0	
4204.03	A	100	0.71	3.64	1-2	
4364.66	A	100	0.65	3.48	0-1	
4143.77	A	15	0.77	3.75	2-1	$a^3P-y^1P^o$ (54)
4058.08	A	5	0.71	3.75	1-1	

La II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3705.81	A	80	0.77	4.10	2-2	$a^3P-x^3P^o$ (55)
3780.67	A	50?	0.71	3.97	1-1	
3854.91	A	30	0.77	3.97	2-1	
3835.09	A	50	0.71	3.92	1-0	
3637.15	A	40	0.71	4.10	1-2	
3714.87	A	40	0.65	3.97	0-1	
5380.97	A	100	0.91	3.21	0-1	$a^1S-y^3D^o$ (58)
4991.27	A	80	0.91	3.39	0-1	$a^1S-z^1P^o$ (57)
4354.40	A	200	0.91	3.75	0-1	$a^1S-y^1P^o$ (58)
4036.59	A	15d	0.91	3.97	0-1	$a^1S-x^3P^o$ (59)
9657.00	A	20	0.92	2.20	4-4	$a^1G-z^3H^o$ (60)
6636.53	A	5	0.92	2.78	4-3	$a^1G-z^3D^o$ (61)
5863.70	A	80	0.92	3.03	4-3	$a^1G-y^1F^o$ (62)
4796.67	A	25	0.92	3.50	4-3	$a^1G-y^3D^o$ (63)
4739.80	A	15	0.92	3.53	4-4	$a^1G-x^3F^o$ † (64)
4748.73	A	150	0.92	3.52	4-5	$a^1G-z^1H^o$ (65)
4042.91	A	300	0.92	3.98	4-3	$a^1G-x^1F^o$ (66)
6958.11	A	100	1.25	3.02	2-2	$b^1D-y^1D^o$ (67)
5486.86	A	5	1.25	3.50	2-3	$b^1D-y^3D^o$ †
*6296.08	A	300	1.25	3.21	2-1	(68)
5971.09	A	8	1.25	3.31	2-3	$b^1D-x^3F^o$ (69)
6126.09	A	50	1.25	3.26	2-2	
5769.06	A	60	1.25	3.39	2-1	$b^1D-z^1P^o$ (70)
5535.66	A	80	1.25	3.48	2-1	$b^1D-y^3P^o$ † (71)
4934.83	A	100	1.25	3.75	2-1	$b^1D-y^1P^o$ (72)
4530.54	A	15	1.25	3.97	2-1	$b^1D-x^3P^o$ (73)
*4522.37	A	400	1.25	3.98	2-3	$b^1D-x^1F^o$ (74)
4286.97	A	300	1.94	4.82	4-5	$z^3F^o-e^3G$ † (75)
4385.20	A	40	1.77	4.59	3-4	
4692.50	A	200	1.75	4.38	2-3	
4655.49	A	400	1.94	4.59	4-4	
4743.08	A	250	1.77	4.38	3-3	
4525.31	A	100	1.94	4.67	4-4	$z^3F^o-e^3F$ (76)
4427.52	A	100	1.77	4.56	3-3	
4619.87	A	300	1.75	4.42	2-2	
4703.27	A	150	1.94	4.56	4-3	
4668.91	A	250	1.77	4.42	3-2	
4269.50	A	300	1.77	4.67	3-4	
4383.44	A	100	1.75	4.56	2-3	
4647.50	A	100	1.94	4.59	4-3	$z^3F^o-e^1F$ (77)
4378.10	A	50	1.77	4.59	3-3	
4334.96	A	100	1.75	4.59	2-3	
4317.56	A	200	1.94	4.86	4-3	$z^3F^o-e^3D$ † (78)
4192.35	A	100	1.77	4.72	3-2	
4099.54	A	150	1.75	4.76	2-1	
3994.50	A	10	1.77	4.86	3-3	
4152.78	A	100	1.75	4.72	2-2	
4249.99	A	100	1.94	4.84	4-4	$z^3F^o-e^1G$ (79)
4023.58	A	40	1.77	4.84	3-4	
4671.82	A	200	1.95	4.59	3-4	$z^1F^o-e^3G$ (80)
5080.21	A	40	1.95	4.38	3-3	
4540.71	A	10	1.95	4.67	3-4	$z^1F^o-e^3F$ † (81)
4719.93	A	150	1.95	4.56	3-3	
4663.76	A	300	1.95	4.59	3-3	$z^1F^o-e^1F$ (82)
4230.95	A	150	1.95	4.86	3-3	$z^1F^o-e^3D$ (83)
4263.59	A	200	1.95	4.84	3-4	$z^1F^o-e^1G$ (84)
4050.08	A	200	1.95	4.99	3-2	$z^1F^o-e^1D$ (85)
4859.18	A	5n	2.05	4.59	4-4	$z^1G^o-e^3G$ †
5302.62	A	150	2.05	4.38	4-3	(86)

La II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4717.58	A	50	2.05	4.67	4-4	$z^1G^o-e^3F$
4911.34	A	10	2.05	4.56	4-3	(87)
*4850.58	A	30	2.05	4.59	4-3	$z^1G^o-e^1F$ (88)
4419.16	A	30	2.05	4.84	4-4	$z^1G^o-e^1G$ (89)
5048.04	A	30 l	2.37	4.82	4-5	$y^3F^o-e^3G$
5279.11	A	40	2.25	4.59	3-4	(90)
5480.72	A	25	2.12	4.38	2-3	
5566.92	A	40	2.37	4.59	4-4	
5806.56	A	8	2.25	4.38	3-3	
5381.77	A	50	2.37	4.67	4-4	$y^3F^o-e^3F$ †
5340.66	A	100	2.25	4.56	3-3	(91)
5381.91	A	100	2.12	4.42	2-2	
4952.06	A	40	2.37	4.86	4-3	$y^3F^o-e^3D$ †
5002.12	A	40	2.25	4.72	3-2	(92)
4688.65	A	40	2.12	4.76	2-1	
4996.82	A	50	2.37	4.84	4-4	$y^3F^o-e^1G$ (93)
4498.76	A	10	2.25	4.99	3-2	$y^3F^o-e^1D$ (94)
5188.21	A	500	2.44	4.82	6-5	$z^3H^o-e^3G$
5377.08	A	200	2.29	4.59	5-4	(95)
5671.54	A	100	2.20	4.38	4-3	
4891.43	A	10	2.29	4.82	5-5	
5167.28	A	10	2.20	4.59	4-4	
5204.14	A	300	2.29	4.67	5-4	$z^3H^o-e^3F$
5226.20	A	40 l	2.20	4.56	4-3	(96)
5157.43	A	150	2.20	4.59	4-3	$z^3H^o-e^1F$ (97)
4843.29	A	5	2.29	4.84	5-4	$z^3H^o-e^1G$ (98)
5458.68	A	50	2.33	4.59	2-3	$z^1D^o-e^1F$ (99)
5172.89	A	20 l	2.33	4.72	2-2	$z^1D^o-e^3D$ †
5090.56	A	20 l	2.33	4.76	2-1	(100)
4636.42	A	80	2.33	4.99	2-2	$z^1D^o-e^1D$ (101)
3007.32	A	5	2.33	6.44	2-3	$z^1D^o-f^1F$ (102)
5973.52	A	120 l	2.75	4.82	5-5	$z^3G^o-e^3G$ †
6310.91	A	200	2.63	4.59	4-4	(103)
6642.79	A	100	2.52	4.38	3-3	
6714.08	A	80	2.75	4.59	5-4	
5652.3	A	10 n	2.63	4.82	4-5	
6446.62	A	200	2.75	4.87	5-4	$z^3G^o-e^3F$ †
6399.04	A	400	2.63	4.56	4-3	(104)
6498.19	A	250	2.52	4.42	3-2	
5948.30	A	20	2.52	4.59	3-3	$z^3G^o-e^1F$ (105)
5532.17	A	10	2.63	4.86	4-3	$z^3G^o-e^3D$
5610.53	A	20	2.52	4.72	3-2	(106)
5901.95	A	40 l	2.75	4.84	5-4	$z^3G^o-e^1G$ (107)
6830.83	A	6	2.78	4.59	3-4	$z^3D^o-e^3G$ † (108)
6554.18	A	?	2.78	4.67	3-4	$z^3D^o-e^3F$
6732.80	A	40	2.73	4.56	2-3	(109)
6968.78	A	25	2.65	4.42	1-2	
6813.68	A	50	2.78	4.59	3-3	$z^3D^o-e^1F$ † (110)
5927.71	A	30	2.78	4.86	3-3	$z^3D^o-e^3D$ †
6203.51	A	50 l	2.73	4.72	2-2	(111)
5848.95	A	20	2.65	4.76	1-1	
6374.08	A	30	2.78	4.72	3-2	
6085.43	A	10	2.73	4.76	2-1	
5447.59	A	10	2.73	4.99	2-2	$z^3D^o-e^1D$ † (112)
3484.39	A	10 l	2.78	6.32	3-3	$z^3D^o-f^3D$ †
3432.81	A	5	2.73	8.32	2-3	(113)
3209.13	A	6	2.78	6.63	3-3	$z^3D^o-g^3D$ †
3283.98	A	5	2.73	6.51	2-2	(114)
3253.41	A	10n	2.85	6.44	1-1	

La II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3049.39	A	5	2.78	6.83	3-4	$z^3D^o-f^3F$ †
3054.02	A	6	2.73	6.77	2-3	(115)
3081.42	A	6n	2.65	6.65	1-2	
3022.26	A	5nl	2.73	6.81	2-2	$z^3D^o-g^1D$ (116)
6188.09	A	100 l	2.87	4.86	2-3	$z^3P^o-e^3D$ †
6443.05	A	50 n	2.80	4.72	1-2	(117)
6307.25	A	20 n	2.80	4.76	0-1	
6315.79	A	50	2.80	4.76	1-1	
5808.63	A	8	2.87	4.99	2-2	$z^3P^o-e^1D$ (118)
3460.31	A	5 l	2.87	6.44	2-3	$z^3P^o-f^1F$ (119)
3283.95	A	8 n	2.87	6.63	2-3	$z^3P^o-g^3D$ †
3329.07	A	8	2.80	6.51	1-2	(120)
3326.21	A	5	2.87	6.58	2-1	$z^3P^o-e^1P$ † (121)
3212.56	A	5	2.87	6.71	2-1	$z^3P^o-e^3S$ † (122)
3932.53	A	10 l	3.02	6.16	2-2	$y^1D^o-f^3D$ † (123)
3694.27	A	7 n	3.02	6.36	2-2	$y^1D^o-f^1D$ (124)
3612.34	A	50	3.02	6.44	2-3	$y^1D^o-f^1F$ (125)
3420.54	A	5 n	3.02	6.63	2-3	$y^1D^o-g^3D$ † (126)
3520.72	A	10 nl	3.02	6.53	2-3	$y^1D^o-f^3G$ (127)
3397.77	A	40 nl	3.02	6.65	2-2	$y^1D^o-f^3F$ (128)
6718.68	A	60	3.03	4.88	3-3	$y^1F^o-e^3D$ † (129)
6801.38	A	5	3.03	4.84	3-4	$y^1F^o-e^1G$ (130)
6273.76	A	100	3.03	4.99	3-2	$y^1F^o-e^1D$ (131)
3427.57	A	8	3.03	6.63	3-3	$y^1F^o-g^3D$ (132)
4363.05	A	50 l	3.50	6.32	3-3	$y^3D^o-f^3D$
4443.94	A	20 nl	3.38	6.16	2-2	(133)
4207.61	A	10 l	3.21	6.14	1-1	
4634.95	A	25 l	3.50	6.16	3-2	
4474.03	A	10	3.38	6.14	2-1	
m4193.37	P	La+	3.38	6.32	2-3	
4180.97	A	12 l	3.21	6.16	1-2	
3939.85	A	20 l	3.50	6.63	3-3	$y^3D^o-g^3D$ †
3816.25	A	10 n	3.21	6.44	1-1	(134)
3925.09	A	5	3.38	6.53	2-3	$y^3D^o-f^3G$ (135)
3701.81	A	40 l	3.50	6.83	3-4	$y^3D^o-f^3F$ †
3641.66	A	50 l	3.38	6.77	2-3	(136)
3581.68	A	20 nl	3.21	6.65	1-2	
3731.42	A	8 n	3.50	6.80	3-4	$y^3D^o-e^3H$ (137)
4411.21	A	25 nl	3.53	6.32	4-3	$x^3F^o-f^3D$ †
4337.78	A	10 l	3.31	6.16	3-2	(138)
4098.73	A	5	3.31	6.32	3-3	
3981.36	A	10 l	3.26	6.36	2-2	$x^3F^o-f^1D$ (139)
3979.08	A	8 l	3.53	6.63	4-3	$x^3F^o-g^3D$ † (140)
3864.49	A	100 l	3.53	6.72	4-5	$x^3F^o-f^3G$ †
3773.12	A	150 l	3.31	8.58	3-4	(141)
3780.53	A	50 ?	3.26	6.53	2-3	
3736.41	A	15 l	3.53	6.83	4-4	$x^3F^o-f^3F$ †
3570.10	A	30 nl	3.31	6.77	3-3	(142)
3474.84	A	8 l	3.26	6.81	2-2	$x^3F^o-g^1D$ † (143)
3423.9	A	5	3.31	6.92	3-4	$x^3F^o-f^1G$ † (144)
2985.43	A	5	3.28	7.39	2-2	$x^3F^o-h^1D$ (145)
4481.21	A	25 nl	3.39	6.14	1-1	$z^1P^o-f^3D$ (146)
3059.91	A	8	3.39	7.42	1-0	$z^1P^o-f^3P$ † (147)

La II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
*4600.59	A	5n	(3.64 3.48	6.32 6.16	2-3 1-2	$y^3P^o-f^3D$ (148)
4538.87	A	8nl	3.64	6.36	2-2	$y^3P^o-f^1D$ (149)
4132.50	A	10nl	3.64	6.63	2-3	$y^3P^o-g^3D$ (150)
3767.05	A	5n	3.64	6.92	2-2	$y^3P^o-e^3P$
3885.09	A	4	3.64	6.82	2-1	(151)
9346.69	A	15	3.52	4.84	5-4	$z^1H^o-e^1G$ (152)
4880.20	A	10n	4.10	6.63	2-3	$x^3P^o-g^3D$ (153)
4502.16	A	10nl	3.97	6.71	1-1	$x^3P^o-e^3S$ (154)
3411.76	A	20nl	4.10	7.72	2-2	$x^3P^o-f^3P$
3580.10	A	8n	4.10	7.55	2-1	(155)
3578.89	A	5n	3.97	7.42	1-0	
3294.44	A	10	3.97	7.72	1-2	
3407.00	A	8nl	3.92	7.55	0-1	
3217.12	A	8n	4.10	7.94	2-2	$x^3P^o-g^3P$
3112.63	A	8n	3.97	7.94	1-2	(156)
3174.88	A	10nl	4.10	7.99	2-3	$x^3P^o-h^3D$
3191.39	A	10n	4.10	7.97	2-2	(157)
5173.83	A	25 l	3.98	6.36	3-2	$x^1F^o-f^1D$ (158)
5014.45	A	30nl	3.98	6.44	3-3	$x^1F^o-f^1F$ (159)
4194.36	A	30n	3.98	6.92	3-4	$x^1F^o-f^1G$ (160)
4562.5	A	5n	4.38	7.08	3-3	e^3G-1° (161)
5066.99	A	20n	4.82	7.25	5-4	e^3G-2° (162)
4241.20	A	15nl	4.59	7.50	4-4	e^3G-4° † (163)
5107.54	A	6n	4.67	7.08	4-3	e^3F-1° (164)
4304.11	A	10nl	4.67	7.53	4-	e^3F-5° † (165)
4113.28	A	40 l	4.59	7.59	3-	e^1F-6° (166)
4131.74	A	5n	4.86	7.85	3-	e^3D-7° (167)
3817.24	A	8n	4.72	7.95	2-3	e^3D-8° (168)

Strongest Unclassified Lines of La II
(Some may be La III)

5217.83	A	10n
4516.38	A	5nl
4310.22	A	50nl
4201.50	A	6n
4193.34	A	5
4161.94	A	8n
4133.33	A	6nl
4007.64	A	7n
3963.04	A	5 l
3962.03	A	10 l
3747.96	A	5 l
3665.22	A	10 l
3610.25	A	30 l
3298.72	A	5 n
3208.13	A	6
3018.95	A	6nl
3004.68	A	5n

La III I P 19.1 Anal C Liet A Nov 1942

3171.68	A	300	1.68	5.57	$\frac{1}{2}-1\frac{1}{2}$	$6^2S-6^2P^o$
3517.14	A	200	1.68	5.19	$\frac{1}{2}-\frac{1}{2}$	(1)

Ce I No analysis May 1942 (Temperature Class)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ce II I P ?	Anal B		List B		Dec 1941	
Group I						
4186.599	C	600	0.38	3.33	6½-7½	a⁴H-z⁴I°
4248.676	C	200	0.20	3.11	5½-6½	(1)
4306.724	C	100	0.04	2.90	4½-5½	
4562.360	A	400	0.00	2.71	3½-4½	
4528.472	A	150	0.38	3.11	6½-6½	
4572.277	A	250	0.20	2.90	5½-5½	
4628.160	A	500	0.04	2.71	4½-4½	
4418.784	A	200	0.38	3.18	6½-6½	a⁴H-z⁴H°
4382.167	A	200	0.20	3.02	5½-5½	(2)
4396.680	A	200	0.04	2.91	4½-4½	
4460.213	A	400	0.00	2.77	3½-3½	
4680.458	C	(2)	0.38	3.02	6½-5½	
4560.959	C	60	0.20	2.91	5½-4½	
4523.077	A	125	0.04	2.77	4½-3½	
4151.970	C	200	0.20	3.18	5½-6½	
4137.646	C	400	0.04	3.02	4½-5½	
4239.912	A	200	0.00	2.91	3½-4½	
4483.900	A	100	0.38	3.14	6½-5½	a⁴H-z²H°
4450.732	A	75	0.20	2.98	5½-4½	(3)
*4209.409§	A	(25)	0.20	3.14	5½-5½	
4198.724	A	60	0.04	2.98	4½-4½	
3934.46	P		0.04	3.14	4½-5½	
4144.492	A	(10)	0.00	2.98	3½-4½	
*4133.800	C	500	0.38	3.37	6½-5½	a⁴H-z⁴G°
4127.367	C	150	0.20	3.20	5½-4½	(4)
*4133.800	C	500	0.04	3.02	4½-3½	
4073.477	C	200	0.00	3.03	3½-2½	
4081.222	A	150	0.00	3.02	3½-3½	
4101.772	A	125	0.38	3.39	6½-6½	a⁴H-z²I°
4388.007	A	(8)	0.38	3.20	6½-5½	(5)
4606.402	A	50	0.43	3.11	5½-6½	a²H-z⁴I°
4593.932	A	200	0.22	2.90	4½-5½	(6)
4198.669	A	75	0.43	3.02	5½-5½	a²H-z⁴H°
4582.502	A	(10)	0.22	2.91	4½-4½	(7)
4560.280	A	125	0.43	3.14	5½-5½	a²H-z²H°
4471.240	A	200	0.22	2.98	4½-4½	(8)
4844.87	P		0.43	2.98	5½-4½	
4227.746	A	100	0.22	3.14	4½-5½	
4144.995	A	60	0.22	3.20	4½-4½	a²H-z⁴G° (9)
4165.606	C	200	0.43	3.39	5½-6½	a²H-z²I°
4142.398	A	150	0.22	3.20	4½-5½	(10)
4461.138	A	50	0.43	3.20	5½-5½	
4285.366	A	30	0.43	3.31	5½-4½	a²H-z²G°
4118.144	C	200	0.22	3.21	4½-3½	(11)
3993.822	C	200	0.43	3.52	5½-4½	a²H-y²G°
*3918.276	C	200	0.22	3.37	4½-3½	(12)
5330.582	A	25	0.39	2.71	4½-4½	b²H-z⁴I° (13)
5075.304	C	20	0.55	2.98	5½-4½	b²H-z²H° (14)
5079.681	C	75	0.90	3.33	8½-7½	a⁴K-z⁴I°
5187.452	C	60	0.73	3.11	7½-6½	(15)
5274.244	A	75	0.56	2.90	6½-5½	
5353.534	A	50	0.40	2.71	5½-4½	
5044.008	A	25	0.73	3.18	7½-6½	a⁴K-z⁴H°
5022.871	C	20	0.56	3.02	6½-5½	(16)
4467.537	A	(5)	0.61	3.37	4½-5½	a⁴F-z⁴G°
4714.83	A	—	0.58	3.20	3½-4½	(17)
4846.574	C	(8)	0.48	3.02	2½-3½	
4773.942	C	50	0.44	3.03	1½-2½	
4680.127	C	25	0.58	3.21	3½-3½	a⁴F-z²G° (18)
4429.270	C	100	0.61	3.39	4½-5½	a⁴F-y⁴G°
4442.72	P		0.58	3.36	3½-4½	(19)
4078.321	A	60	0.48	3.50	2½-3½	
4444.393	A	60	0.44	3.22	1½-2½	
4491.10	P		0.61	3.36	4½-4½	
4217.591	A	30	0.58	3.50	3½-3½	
4497.849	A	25	0.48	3.22	2½-2½	
4261.164	A	(18)	0.61	3.50	4½-3½	
4463.410	A	60	0.48	3.24	2½-1½	a⁴F-z⁴D° (20)
4565.842	A	50	0.61	3.52	4½-4½	a⁴F-y²G°
4423.878	A	(25)	0.58	3.37	3½-3½	(21)
4270.716	C	50	0.48	3.37	2½-3½	
4119.784	A	(20)	0.61	3.60	4½-4½	a⁴F-z⁴F°
4067.279	A	50	0.58	3.61	3½-3½	(22)
4123.488	C	(20)	0.48	3.47	2½-2½	
4115.374	A	150	0.44	3.44	1½-1½	
4161.175	A	(18)	0.48	3.44	2½-1½	
5117.175	A	15	0.92	3.33	7½-7½	a⁴I-z⁴I°
5265.710	A	15	0.77	3.11	6½-6½	(23)
5409.224	A	80	0.62	2.90	5½-5½	
5888.901	A	40	0.53	2.71	4½-4½	
m5488.37	P	Ce I	0.92	3.18	7½-6½	a⁴I-z⁴H°
5472.297	C	30	0.77	3.02	6½-5½	(24)
5393.391	A	100	0.82	2.91	5½-4½	
5512.085	C	150	0.53	2.77	4½-3½	
3360.541	A	75	0.92	4.59	7½-7½	a⁴I-y⁴I°
3334.455	A	60	0.77	4.47	6½-6½	(25)
3312.215	A	50	0.82	4.35	5½-5½	
3325.329	A	50	0.53	4.24	4½-4½	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ce II continued						
5518.491	A	10	0.67	2.91	3½-4½	a⁴G-z⁴H°
5610.257	C	20	0.57	2.77	2½-3½	(26)
4624.899	A	60	0.64	3.31	3½-4½	a²F-z²G° (27)
4148.901	A	(25)	0.61	3.58	2½-2½	a²F-z²D° (28)
4167.804	A	(12)	0.64	3.60	3½-4½	a²F-z²F°
4110.381	A	60	0.61	3.61	2½-3½	(29)
4155.532	A	(6)	0.64	3.61	3½-3½	
6035.487	C	(4)	1.13	3.18	6½-6½	b⁴H-z⁴H° †
6034.204	C	(4)	0.98	3.02	5½-5½	(30)
5975.830	A	20	0.85	2.91	4½-4½	
6043.386	A	60	0.72	2.77	3½-3½	
4893.968	C	15	0.85	3.37	4½-3½	b⁴H-y²G° (31)
5613.698	A	(5)	0.94	3.14	6½-5½	a²I-z²H°
5768.895	C	20	0.84	2.98	5½-4½	(32)
4410.641	C	30	0.87	3.66	4½-3½	a²G-y²F° (33)
4339.317	A	30	0.87	3.71	4½-4½	a²G-x²G°
4062.223	A	60	0.88	3.92	3½-3½	(34)
4117.013	C	75	0.87	3.86	4½-5½	a²G-y²H°
4163.516	A	(20)	0.88	3.85	3½-4½	(35)
Ce II Group II See Introduction						
3562.091	A	(6)	(0.52	3.98)	6½-7½	a⁴H°-z⁴I †
4053.506	A	100	(0.00	3.04)	3½-4½	(36)
3848.597	C	150	(0.52	3.73)	6½-6½	
4080.435	B	(5)	(0.36	3.38)	5½-5½	
4222.599	A	300	(0.12	3.04)	4½-4½	
3718.380	C	200	(0.52	3.84)	6½-5½	a⁴H°-z⁴G †
3803.097	A	200	(0.36	3.60)	5½-4½	(37)
3815.831	C	250	(0.12	3.36)	4½-3½	
3942.151	B	125	(0.00	3.13)	3½-2½	
3653.108	A	125	(0.36	3.73)	5½-4½	a⁴H°-z⁴F
3668.719	A	(12)	(0.00	3.36)	3½-2½	(38)
3853.164	A	125	(0.00	3.20)	3½-3½	a⁴H°-z²G (39)
3709.286	A	400	(0.52	3.85)	6½-6½	a⁴H°-z⁴H †
3667.981	A	400	(0.36	3.72)	5½-5½	(40)
3709.933	A	500	(0.12	3.45)	4½-4½	
3716.365	A	600	(0.00	3.32)	3½-3½	
3764.117	A	150	(0.36	3.63)	5½-5½	a⁴H°-y³H (41)
3660.641	C	250	(0.12	3.49)	4½-3½	a⁴H°-116 † (42)
3927.383	B	(4)	(0.36	3.50)	5½-4½	a⁴H°-x³H (43)
3534.051	C	300	(0.52	4.01)	6½-5½	a⁴H°-y⁴G
3545.603	B	(3)	(0.36	3.84)	5½-4½	(44)
3426.208	C	250	(0.12	3.72)	4½-3½	
3485.054	C	400	(0.00	3.54)	3½-2½	
3441.210	C	150	(0.36	3.94)	5½-4½	a⁴H°-159 (45)
3393.920	C	50	(0.52	4.16)	6½-6½	a⁴H°-z²I
3142.312	A	(25)	(0.12	4.05)	4½-5½	(46)
3728.423	A	250	(0.67	3.98)	7½-7½	a⁴I°-z⁴I †
3788.753	A	75	(0.47	3.73)	6½-6½	(47)
4028.411	A	150	(0.32	3.38)	5½-5½	
4299.362	B	60	(0.17	3.04)	4½-4½	
3757.862	A	(15)	(0.32	3.60)	5½-4½	a⁴I°-z⁴G
3878.372	A	150	(0.17	3.36)	4½-3½	(48)
4024.491	C	60	(0.47	3.53)	6½-5½	a⁴I°-z²H
3834.556	B	100	(0.32	3.53)	5½-5½	(49)
3931.088	A	125	(0.17	3.31)	4½-4½	
*3673.166§	B	(5d)	(0.17	3.53)	4½-5½	
3889.990	C	300	(0.67	3.85)	7½-6½	a⁴I°-z⁴H
3795.256	C	(5)	(0.47	3.72)	6½-5½	(50)
3940.338	B	100	(0.32	3.45)	5½-4½	
3922.005	C	(2s)	(0.17	3.32)	4½-3½	
3653.670	C	250	(0.47	3.85)	6½-6½	
3769.046	B	(5)	(0.17	3.45)	4½-4½	
3560.798	C	500	(0.67	4.14)	7½-6½	a⁴I°-y⁴H
3577.458	C	500	(0.47	3.92)	6½-5½	(51)
3698.650	B	(5)	(0.32	3.69)	5½-4½	
3786.632	B	150	(0.17	3.43)	4½-3½	
3426.583	B	(4)	(0.32	3.92)	5½-5½	
3507.945	A	125	(0.17	3.69)	4½-4½	
3655.851	A	500	(0.32	3.69)	5½-4½	
3898.373	C	100	(0.47	3.63)	6½-5½	a⁴I°-y³H †
3719.797	A	(15)	(0.32	3.63)	5½-5½	(52)
3718.190	B	150	(0.17	3.49)	4½-3½	a⁴I°-116 (53)
3659.227	A	125	(0.17	3.55)	4½-3½	a⁴I°-123 (54)
3520.522	A	150	(0.17	3.68)	4½-3½	a⁴I°-132 (55)
3448.721	A	(15)	(0.32	3.90)	5½-4½	a⁴I°-156 (58)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ce II continued						
3942.746	C	150	(0.85	3.98)	6½-7½	b⁴H°-z⁴I
4075.714	C	150	(0.70	3.73)	5½-6½	(57)
3999.242	B	500	(0.29	3.38)	4½-5½	
4386.835	A	(15)	(0.23	3.04)	3½-4½	
4296.786	A	(5)	(0.85	3.73)	6½-6½	
4486.909	A	150	(0.29	3.04)	4½-4½	
4242.723	A	(15)	(0.29	3.20)	4½-3½	b⁴H°-z²G (58)
4349.789	A	100	(0.70	3.53)	5½-5½	b⁴H°-z²H
4087.297	B	(4)	(0.29	3.31)	4½-4½	(59)
3808.124	B	300	(0.29	3.53)	4½-5½	
4123.872	A	150	(0.85	3.85)	6½-6½	b⁴H°-z⁴H
4083.233	A	200	(0.70	3.72)	5½-5½	(60)
3912.424	B	300	(0.29	3.45)	4½-4½	
4077.470	B	75	(0.29	3.32)	4½-3½	
3919.813	A	100	(0.70	3.85)	5½-6½	
3836.112	A	(15)	(0.23	3.45)	3½-4½	
3931.369	B	100	(0.29	3.43)	4½-3½	b⁴H°-y⁴H
3854.322	B	100	(0.23	3.43)	3½-3½	(61)
3854.187	B	100	(0.23	3.43)	3½-2½	b⁴H°-112 (62)
3694.911	A	60	(0.29	3.63)	4½-5½	b⁴H°-y²H (63)
4407.278	A	(40)	(0.70	3.50)	5½-4½	b⁴H°-x²H † (64)
3908.408	A	125	(0.85	4.01)	6½-5½	b⁴H°-y⁴G (65)
3646.965	C	200	(0.29	3.68)	4½-3½	b⁴H°-131 † (66)
3501.453	B	60	(0.23	3.76)	3½-2½	b⁴H°-141 (67)
3279.842	B	125	(0.29	4.06)	4½-3½	b⁴H°-171 † (68)
3164.154	A	200	(0.29	4.19)	4½-3½	b⁴H°-186 † (69)
3146.407	B	200	(0.29	4.22)	4½-3½	b⁴H°-188 † (70)
3622.145	A	100	(0.85	4.26)	6½-6½	b⁴H°-y²I (71)
2990.873	A	80	(0.29	4.42)	4½-4½	b⁴H°-209 (72)
3272.253	A	250	(0.70	4.47)	5½-4½	b⁴H°-213 (73)
3169.183	C	150	(0.70	4.59)	5½-4½	b⁴H°-221 (74)
3218.944	C	200	(0.85	4.69)	6½-5½	b⁴H°-229 (75)
3201.714	C	300	(0.85	4.71)	6½-5½	b⁴H°-232 (76)
4117.288	A	(20)	(0.74	3.73)	3½-4½	a⁴D°-z⁴F
4253.356	A	50	(0.46	3.36)	1½-2½	(77)
4246.711	A	(30)	(0.46	3.17)	1½-1½	
3914.949	A	(18)	(0.46	3.61)	1½-2½	a⁴D°-126 (78)
4193.094	C	50	(0.74	3.68)	3½-3½	a⁴D°-132 (79)
3234.274	C	300	(0.26	4.08)	½-1½	a⁴D°-173 (80)
3933.731	C	(60)	(0.70	3.84)	4½-5½	a⁴F°-z⁴G
4046.341	B	100	(0.55	3.60)	3½-4½	(81)
4071.814	C	150	(0.33	3.36)	2½-3½	
4391.661	A	250	(0.32	3.13)	1½-2½	
4255.784	A	60	(0.70	3.60)	4½-4½	
4398.787	A	(20)	(0.55	3.36)	3½-3½	
4399.203	A	60	(0.33	3.13)	2½-2½	
4068.836	A	75	(0.70	3.73)	4½-4½	a⁴F°-z⁴F †
4330.445	A	30	(0.32	3.17)	1½-1½	(82)
4337.777	A	125	(0.33	3.17)	2½-1½	
3876.974	A	(15)	(0.55	3.73)	3½-4½	
4054.991	A	50	(0.32	3.36)	1½-2½	
4119.877	A	(20)	(0.33	3.32)	2½-3½	a⁴F°-z⁴H † (83)
3967.048	A	100	(0.33	3.44)	2½-1½	a⁴F°-z²D
3960.914	A	125	(0.32	3.44)	1½-1½	(84)
4193.874	A	(35)	(0.55	3.49)	3½-3½	a⁴F°-116 (85)
4187.323	A	(35)	(0.55	3.50)	3½-4½	a⁴F°-x²H (86)
3882.446	A	75	(0.32	3.50)	1½- ½	a⁴F°-z⁴D (87)
3631.194	B	125	(0.33	3.72)	2½-3½	a⁴F°-y⁴G (88)
4336.255	A	50	(0.70	3.55)	4½-3½	a⁴F°-123
4119.015	A	(25)	(0.55	3.55)	3½-3½	(89)
3722.759	A	(12)	(0.32	3.64)	1½-1½	a⁴F°-129 (90)
4098.981	A	(15)	(0.70	3.71)	4½-3½	a⁴F°-136 †
2904.340	B	(5)	(0.55	3.71)	3½-3½	(91)
3760.694	A	(6)	(0.55	3.83)	3½-2½	a⁴F°-148
3519.077	A	(25)	(0.33	3.83)	2½-2½	(92)
3276.251	A	(18)	(0.33	4.09)	2½-2½	a⁴F°-175 (93)
3436.304	A	(15)	(0.55	4.14)	3½-2½	a⁴F°-180 †
3229.363	A	(25)	(0.32	4.14)	1½-2½	(94)
*3227.114§	A	300	(0.32	4.14)	1½-1½	a⁴F°-181 (95)
3405.977	C	100	(0.55	4.17)	3½-4½	a⁴F°-184 (96)
3189.638	A	(30)	(0.33	4.19)	2½-3½	a⁴F°-186 (97)
3379.172	C	100	(0.55	4.20)	3½-4½	a⁴F°-187 (98)
3366.554	B	150	(0.55	4.22)	3½-3½	a⁴F°-188
3171.815	B	200	(0.33	4.22)	2½-3½	(99)

Ce II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
3417.450	A	125	(0.70	4.31)	4½-4½	a⁴F°-199 (100)
3236.735	A	150	(0.55	4.36)	3½-3½	a⁴F°-205 (101)
3317.797	A	30	(0.70	4.42)	4½-4½	a⁴F°-209 (102)
3304.836	A	60	(0.70	4.44)	4½-3½	a⁴F°-210
3177.137	A	(20)	(0.55	4.44)	3½-3½	(103)
3274.864	C	150	(0.70	4.47)	4½-4½	a⁴F°-213 (104)
3082.304	A	(20)	(0.55	4.55)	3½-3½	a⁴F°-217 (105)
3199.279	A	(25)	(0.70	4.56)	4½-4½	a⁴F°-218 (106)
3017.195	A	80	(0.70	4.79)	4½-3½	a⁴F°-237 (107)
4031.339	B	150	(0.32	3.38)	4½-5½	a²G°-z⁴I
4539.755	B	200	(0.33	3.04)	3½-4½	(108)
4527.348	A	200	(0.32	3.04)	4½-4½	
3760.404	B	(2)	(0.32	3.60)	4½-4½	a²G°-z⁴G†
4072.917	A	(20)	(0.33	3.36)	3½-3½	(109)
3613.701	A	150	(0.32	3.73)	4½-4½	a²G°-z⁴F (110)
4278.866	A	(20)	(0.32	3.20)	4½-3½	a²G°-z²G
4289.938	A	300	(0.33	3.20)	3½-3½	(111)
3637.210	B	(3)	(0.32	3.53)	4½-5½	a²G°-z²H
4131.099	B	100	(0.33	3.31)	3½-4½	(112)
4120.829	A	150	(0.32	3.31)	4½-4½	
3628.247	A	(10)	(0.32	3.72)	4½-5½	a²G°-z⁴H†
•3952.573	B	125	(0.33	3.45)	3½-4½	(113)
3943.141	B	(5)	(0.32	3.45)	4½-4½	
3508.470	B	(4)	(0.32	3.84)	4½-4½	a²G°-y⁴G
3632.106	A	(10)	(0.33	3.72)	3½-3½	(114)
3838.542	A	150	(0.33	3.54)	3½-2½	
3823.903	A	50	(0.32	3.55)	4½-4½	a²G°-123
3832.745	B	(4)	(0.33	3.55)	3½-4½	(115)
3598.196	B	50	(0.33	3.76)	3½-2½	a²G°-141 (116)
3554.993	A	150	(0.32	3.79)	4½-4½	a²G°-y²G (117)
3539.086	A	300	(0.32	3.81)	4½-3½	a²G°-145† (118)
3234.165	B	300	(0.33	4.14)	3½-2½	a²G°-180 (119)
3145.283	A	150	(0.33	4.25)	3½-2½	a²G°-193 (120)
3056.775	B	200	(0.33	4.36)	3½-3½	a²G°-205† (121)
3008.789	A	125	(0.32	4.42)	4½-4½	a²G°-209 (122)
4196.335	B	75	(0.42	3.36)	2½-3½	a²F°-z⁴G†
4257.121	A	(20)	(0.46	3.36)	3½-3½	(123)
•4544.961	B	(5)	(0.42	3.13)	2½-2½	
3766.514	B	(4n)	(0.46	3.73)	3½-4½	a²F°-z⁴F
4185.334	B	(5)	(0.42	3.36)	2½-2½	(124)
4479.432	A	30	(0.42	3.17)	2½-1½	
4320.723	A	60	(0.46	3.31)	3½-4½	a²F°-z²H (125)
4125.776	B	(2)	(0.46	3.45)	3½-4½	a²F°-z⁴H
4309.739	A	50	(0.46	3.32)	3½-3½	(126)
3857.240	B	(4)	(0.42	3.61)	2½-2½	a²F°-128
3908.543	B	100	(0.46	3.61)	3½-2½	(127)
3755.425	A	75	(0.42	3.70)	2½-1½	a²F°-134 (128)
3792.326	A	50	(0.46	3.71)	3½-3½	a²F°-136† (129)
3246.674	A	60	(0.42	4.22)	2½-3½	a²F°-188 (130)
3546.190	A	150	(1.31	4.79)	2½-2½	a⁴P°-238
3423.853	A	(20)	(1.19	4.79)	1½-2½	(131)
3476.842	A	150	(1.31	4.86)	2½-3½	a⁴P°-244 (132)
3909.313	A	(35)	(0.44	3.60)	4½-4½	b²G°-z⁴G
4310.699	A	(30)	(0.49	3.38)	3½-3½	(133)
3971.684	A	100	(0.49	3.60)	3½-4½	
3993.388	A	125	(0.44	3.53)	4½-5½	b²G°-z²H
4375.918	A	60	(0.49	3.31)	3½-4½	(134)
4300.331	A	60	(0.44	3.31)	4½-4½	
4289.454	A	(25)	(0.44	3.32)	4½-3½	b²G°-z⁴H
4176.080	A	(12)	(0.49	3.45)	3½-4½	(135)
4364.658	A	125	(0.49	3.32)	3½-3½	
3799.038	A	(4)	(0.44	3.69)	4½-4½	b²G°-y⁴H†
4128.067	B	(4)	(0.44	3.43)	4½-3½	(138)
4197.668	B	(4)	(0.49	3.43)	3½-3½	
4113.728	A	(30)	(0.49	3.49)	3½-3½	b²G°-118 (137)
3112.292	C	(15)	(0.44	4.41)	4½-5½	b²G°-x²H
4107.428	B	200	(0.49	3.50)	3½-4½	(138)
4040.762	A	300	(0.44	3.50)	4½-4½	
4106.881	B	(5d)	(0.49	3.50)	3½-2½	b²G°-118 (139)
4042.584	A	200	(0.49	3.55)	3½-4½	b²G°-123 (140)
3957.560	A	(12)	(0.49	3.81)	3½-2½	b²G°-128 (141)
3782.524	B	75	(0.49	3.76)	3½-2½	b²G°-141 (142)
3687.802	A	30	(0.44	3.79)	4½-4½	b²G°-y³G (143)
3422.708	C	300	(0.44	4.05)	4½-5½	b²G°-z²I (144)
3390.515	A	(20)	(0.44	4.08)	4½-3½	b²G°-174 (145)
3271.151	A	(18)	(0.44	4.22)	4½-3½	b²G°-188
3314.721	A	100	(0.49	4.22)	3½-3½	(146)
3295.289	A	80	(0.49	4.24)	3½-2½	b²G°-192 (147)
3285.224	A	125	(0.49	4.25)	3½-2½	b²G°-193 (148)
3231.236	A	200	(0.49	4.31)	3½-2½	b²G°-200 (149)
3127.530	A	80	(0.44	4.39)	4½-3½	b²G°-207† (150)
3103.377	A	125	(0.44	4.42)	4½-4½	b²G°-209 (151)
3110.278	A	100	(0.49	4.46)	3½-2½	b²G°-212 (152)
4678.94	P		(1.20	3.84)	4½-5½	b⁴F°-z⁴G
4696.12	P		(0.97	3.60)	3½-4½	(153)
4508.083	A	(8)	(0.62	3.36)	2½-3½	
4725.090	C	20	(0.52	3.13)	1½-2½	
4495.389	A	(4)	(0.62	3.36)	2½-2½	b⁴F°-z⁴F
4654.286	A	30	(0.52	3.17)	1½-1½	(154)
4380.060	A	(30)	(0.62	3.44)	2½-1½	b⁴F°-z²D (155)
4104.996	C	50	(0.62	3.63)	2½-3½	b⁴F°-127 (156)
4361.661	A	(18)	(0.53	3.36)	3½-3½	c²G°-z⁴G†
4739.49	B	25	(0.53	3.13)	3½-2½	(157)
4014.899	A	125	(0.53	3.60)	3½-4½	
3857.032	B	(5)	(0.72	3.92)	4½-5½	c²G°-y⁴H†
•4149.936	B	50	(0.72	3.69)	4½-4½	(158)
4245.976	B	(6)	(0.53	3.43)	3½-3½	
3343.861	C	200	(0.72	4.41)	4½-5½	c²G°-x²H†
4153.67	P		(0.53	3.50)	3½-4½	(159)
3748.056	C	150	(0.72	4.01)	4½-5½	c²G°-y⁴G
3958.266	B	(6)	(0.72	3.84)	4½-4½	(160)
4106.134	A	(30)	(0.72	3.72)	4½-3½	
4093.955	A	30	(0.53	3.54)	3½-2½	
4169.773	A	(12)	(0.72	3.68)	4½-3½	c²G°-131 (161)
4123.230	B	(5)	(0.72	3.71)	4½-3½	c²G°-136
3875.036	B	(6d)	(0.53	3.71)	3½-3½	(162)
4017.596	A	(10s)	(0.72	3.79)	4½-4½	c²G°-y²G
3781.620	A	150	(0.53	3.79)	3½-4½	(163)
3357.215	A	125	(0.53	4.20)	3½-4½	c²G°-187 (164)
3344.761	A	300	(0.53	4.22)	3½-3½	c²G°-188† (165)
3300.152	C	60	(0.72	4.46)	4½-3½	c²G°-211 (166)
3186.126	C	125	(0.72	4.59)	4½-4½	c²G°-221 (167)
2976.905	A	100	(0.53	4.67)	3½-2½	c²G°-228 (168)
4190.636	C	(30)	(0.89	3.84)	5½-5½	a⁴G°-z⁴G†
4437.612	B	(4)	(0.82	3.60)	4½-4½	(169)
4213.036	A	(15)	(0.67	3.60)	3½-4½	
4372.401	A	(35)	(0.53	3.38)	2½-3½	
4234.727	A	(12)	(0.82	3.73)	4½-4½	a⁴G°-z⁴F† (170)
4443.743	A	(18)	(0.87	3.45)	3½-4½	a⁴G°-z⁴H†
4437.917	B	(6)	(0.53	3.32)	2½-3½	(171)
3801.529	C	500	(0.89	4.14)	5½-6½	a⁴G°-y⁴H
3982.901	B	60	(0.82	3.92)	4½-5½	(172)
4085.232	B	100	(0.67	3.69)	3½-4½	
4256.156	B	(5)	(0.53	3.43)	2½-3½	
4298.089	B	(6)	(0.82	3.69)	4½-4½	
4169.878	B	30	(0.53	3.49)	2½-3½	a⁴G°-116† (173)
4090.947	A	(6)	(0.82	3.84)	4½-4½	a⁴G°-y⁴G (174)
3978.650	C	125	(0.53	3.64)	3½-1½	a⁴G°-129 (175)
4259.748	A	(15)	(0.89	3.79)	5½-4½	a⁴G°-y²G
•3956.901	B	(4)	(0.87	3.79)	3½-4½	(176)
•3952.573	B	125	(0.82	3.94)	4½-4½	a⁴G°-159 (177)
3807.625	A	200	(0.67	4.09)	3½-2½	a⁴G°-175
•3468.113§	A	6	(0.53	4.09)	2½-3½	(178)
3609.687	C	250	(0.89	4.31)	5½-4½	a⁴G°-199 (179)
3051.975	C	60•	(0.53	4.58)	2½-1½	a⁴G°-220 (180)
3037.731	C	80	(0.53	4.80)	2½-1½	a⁴G°-222 (181)
3252.483	C	30	(0.89	4.69)	5½-5½	a⁴G°-229 (182)
2995.644	A	80	(0.87	4.79)	3½-3½	a⁴G°-237 (183)
3051.924	C	60•	(0.82	4.88)	4½-3½	a⁴G°-244 (184)
3063.010	C	400	(0.89	4.92)	5½-4½	a⁴G°-248 (185)
4202.944	A	150	(0.56	3.49)	2½-3½	b⁴G°-11[illegible] (186)
3488.553	A	75	(0.87	4.41)	4½-5½	b⁴G°-x²I (187)
4003.771	C	100	(0.93	4.01)	5½-5½	b⁴G°-y⁴[illegible]
4135.443	A	(20)	(0.56	3.54)	2½-2½	(188)
3896.804	A	100	(0.56	3.72)	2½-3½	
•4149.936	B	60	(0.71	3.68)	3½-3½	b⁴G°-13[illegible] (189)
3924.644	B	60	(0.56	3.70)	2½-1½	b⁴G°-13[illegible] (190)
3923.109	C	125	(0.56	3.70)	2½-2½	b⁴G°-13[illegible] (191)
3912.191	B	(5)	(0.56	3.71)	2½-3½	b⁴G°-13[illegible] (192)
4001.049	B	(4)	(0.71	3.79)	3½-4½	b⁴G°-y²[illegible] (193)
3980.895	B	100	(0.71	3.81)	3½-3½	b⁴G°-14[illegible] (194)
3921.731	B	100	(0.71	3.85)	3½-3½	b⁴G°-15[illegible] (195)
3442.380	A	75	(0.56	4.14)	2½-2½	b⁴G°-18[illegible] (196)
3439.831	C	60	(0.56	4.14)	2½-1½	b⁴G°-18[illegible] (197)
3341.868	A	100	(0.56	4.25)	2½-2½	b⁴G°-19[illegible] (198)
•3286.029§	A	(18)	(0.56	4.31)	2½-2½	b⁴G°-200 (199)
3349.967	A	(30)	(0.71	4.39)	3½-3½	b⁴G°-207 (200)
3055.243	C	150	(0.56	4.60)	2½-1½	b⁴G°-222 (201)
3956.284	C	150	(0.61	3.73)	5½-6½	a²H°-z⁴I
4373.818	A	50	(0.56	3.38)	4½-5½	(202)
4449.336	A	200	(0.61	3.38)	5½-5½	
4214.041	B	50	(0.61	3.53)	5½-5½	a²H°-z²H
4479.359	A	50	(0.56	3.31)	4½-4½	(203)
4146.234	A	75	(0.56	3.53)	4½-5½	
3809.224	A	(25)	(0.61	3.85)	5½-6½	a²H°-z⁴H
4270.189	A	60	(0.56	3.45)	4½-4½	(204)
3938.086	B	(7)	(0.56	3.69)	4½-4½	a²H°-y⁴H
4292.767	B	(4)	(0.56	3.43)	4½-3½	(205)
4075.853	B	125	(0.61	3.63)	5½-5½	a²H°-y²H
4275.561	C	(25)	(0.56	3.44)	4½-4½	(206)
4012.389	B	300	(0.56	3.63)	4½-5½	
4198.431	B	(4)	(0.56	3.50)	4½-4½	a²H°-x²H (207)
3820.871	B	(5)	(0.61	3.84)	5½-4½	a²H°-y⁴G
3765.044	A	(12)	(0.56	3.84)	4½-4½	(208)
•4197.998§	B	(5)	(0.61	3.55)	5½-4½	a²H°-122
4130.706	A	100	(0.56	3.55)	4½-4½	(209)
3895.114	B	125	(0.61	3.77)	5½-4½	a²H°-142 (210)
3521.880	C	200	(0.61	4.11)	5½-4½	a²H°-177 (211)
3373.729	B	125	(0.56	4.22)	4½-3½	a²H°-188 (212)
3377.127	C	300	(0.61	4.26)	5½-6½	a²H°-y³I (213)
3243.370	A	200	(0.56	4.36)	4½-3½	a²H°-205 (214)
3221.171	A	250	(0.56	4.39)	4½-3½	a²H°-207 (215)
3183.523	A	250	(0.56	4.44)	4½-3½	a²H°-210 (218)
3194.825	C	200	(0.61	4.47)	5½-4½	a²H°-213
3155.704	A	(20)	(0.56	4.47)	4½-4½	(217)
4037.865	A	(25)	(0.73	3.79)	3½-4½	b²F°-y³G (218)
3599.974	A	(10)	(0.58	4.01)	2½-1½	b²F°-167 (219)
4352.733	B	75	(0.60	3.43)	1½-2½	a²D°-112 (220)
4007.589	A	(15)	(0.60	3.68)	1½-1½	a²D°-130 (221)
3817.455	A	(25)	(0.60	3.83)	1½- ½	a²D°-147 (222)
3699.920	B	50	(0.63	3.97)	2½-2½	a²D°-161 (223)
4326.826	A	(15)	(0.73	3.58)	1½-1½	a²P°-124 (224)
4280.141	A	(15)	(0.73	3.61)	1½-2½	a²P°-126 (225)
3993.913	A	(15)	(0.73	3.82)	1½-1½	a²P°-146 (226)
4368.234	A	(8)	(0.90	3.73)	6½-6½	a²I°-z⁴I
4129.176	A	(5)	(0.74	3.73)	5½-6½	(227)
•5347.806§	A	(8)	(0.74	3.04)	5½-4½	
4684.605	A	30	(0.90	3.53)	6½-5½	a²I°-z²H
4789.68	P		(0.74	3.31)	5½-4½	(228)
4551.297	A	(20)	(0.74	3.45)	5½-4½	a²I°-z⁴H (229)
3517.380	C	300	(0.90	4.41)	6½-5½	a²I°-x²H
4489.850	C	(4)	(0.74	3.50)	5½-4½	(230)
3725.675	A	(40)	(0.74	4.05)	5½-5½	a²I°-z²I (231)
3590.598	A	125	(0.74	4.17)	5½-4½	a²I°-184 (232)
3673.789	A	60	(0.90	4.26)	6½-6½	a²I°-y²I (233)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ce II continued						
3943.888	B	100	(0.79	3.92)	$4\frac{1}{2}$-$5\frac{1}{2}$	d^2G^o-y^4H (334)
•3623.837	B	200	(0.79	4.19)	$4\frac{1}{2}$-$3\frac{1}{2}$	d^2G^o-186 (235)
3600.583	B	60	(0.79	4.22)	$4\frac{1}{2}$-$3\frac{1}{2}$	d^2G^o-188 (236)
3083.670	C	100	(0.79	4.79)	$4\frac{1}{2}$-$3\frac{1}{2}$	d^2G^o-237 (237)
4440.883	A	(20)	(0.80	3.58)	$2\frac{1}{2}$-$1\frac{1}{2}$	c^2F^o-124 (238)
4264.370	A	(10)	(0.90	3.79)	$3\frac{1}{2}$-$4\frac{1}{2}$	c^2F^o-y^2G (239)
3989.444	B	30	(0.90	3.99)	$3\frac{1}{2}$-$3\frac{1}{2}$	c^2F^o-164 (240)
3741.727	A	(10)	(0.90	4.19)	$3\frac{1}{2}$-$3\frac{1}{2}$	c^2F^o-186 (241)
3716.930	A	(10)	(0.90	4.22)	$3\frac{1}{2}$-$3\frac{1}{2}$	c^2F^o-188 (242)
3559.328	A	(6)	(0.90	4.36)	$3\frac{1}{2}$-$3\frac{1}{2}$	c^2F^o-205 (243)
3373.455	C	100	(0.90	4.55)	$3\frac{1}{2}$-$3\frac{1}{2}$	c^2F^o-217 (244)
4360.16	A	(25)	(0.81	3.64)	$1\frac{1}{2}$-$1\frac{1}{2}$	b^2D^o-129 (245)
4159.033	B	50	(1.02	3.99)	$2\frac{1}{2}$-$3\frac{1}{2}$	b^2D^o-164 (246)
3296.883	A	40	(0.81	4.55)	$1\frac{1}{2}$-$2\frac{1}{2}$	b^2D^o-216 (247)
•3918.276	C	200	(0.89	4.04)	$2\frac{1}{2}$-$2\frac{1}{2}$	c^4F^o-169 (248)
3433.091	A	50	(1.27	4.86)	$3\frac{1}{2}$-$3\frac{1}{2}$	c^4F^o-244 (249)
4713.996	A	30	(1.10	3.72)	$5\frac{1}{2}$-$5\frac{1}{2}$	b^2H^o-z^4H (250)
4345.963	A	(6)	(1.10	3.94)	$5\frac{1}{2}$-$4\frac{1}{2}$	b^2H^o-159 (251)
4042.135	C	(8)	(1.10	4.16)	$5\frac{1}{2}$-$6\frac{1}{2}$	b^2H^o-z^2I
3984.675	A	100	(0.95	4.05)	$4\frac{1}{2}$-$5\frac{1}{2}$	(252)
3907.289	A	125	(1.10	4.26)	$5\frac{1}{2}$-$6\frac{1}{2}$	b^2H^o-y^2I (253)
4263.427	A	(40)	(1.04	3.93)	$3\frac{1}{2}$-$2\frac{1}{2}$	b^4D^o-158 (254)
3946.681	A	(20)	(0.97	4.09)	$1\frac{1}{2}$-$2\frac{1}{2}$	b^4D^o-175 (255)
4015.877	A	(20)	(1.04	4.11)	$3\frac{1}{2}$-$4\frac{1}{2}$	b^4D^o-177 (256)
3679.424	A	50	(1.01	4.36)	$2\frac{1}{2}$-$3\frac{1}{2}$	b^4D^o-205 (257)
3260.975	C	60	(1.01	4.79)	$2\frac{1}{2}$-$2\frac{1}{2}$	b^4D^o-238 (258)
4394.779	A	(30)	(1.25	4.06)	$2\frac{1}{2}$-$3\frac{1}{2}$	e^2F^o-171 (259)

Strongest Unclassified Lines of Ce II

6343.963	C	20	V
4971.475	C	20	V
4882.462	C	40	V
4757.842	C	15	V
4747.143	C	20	V
4737.282	C	60	V
4669.502	C	20	V
4444.704	C	75	V
4231.745	C	30	V
4111.394	C	60	V
4070.094	C	15	V
•3623.837	B	60	V

Ce III I P 19.5 Anal A List B Jan 1942

3055.585	A	600	(2.25	6.29)	4-5	fs^3F^o-fp^3G (1)
3031.559	A	500	(2.00	6.07)	3-4	
3443.609	A	150	(1.97	5.55)	2-3	
3228.564	A	400	(2.25	6.07)	4-4	
3470.894	A	300	(2.00	5.55)	3-3	
3353.262	A	150	(2.25	5.93)	4-4	fs^3F^o-fp^3F (2)
3143.956	A	200	(2.00	5.92)	3-3	
3427.332	A	125	(1.97	5.57)	2-2	
m3356.35	P	Cs^+	(2.25	5.92)	4-3	
3454.368	A	150	(2.00	5.57)	3-2	
3141.247	A	250	(2.00	5.93)	3-4	
3121.548	A	400	(1.97	5.92)	2-3	
•3459.374	A	200	(2.25	5.81)	4-3	fs^3F^o-fp^1F † (3)
3110.516	A	200	(2.25	6.21)	4-3	fs^3F^o-fp^3D † (4)
3106.974	A	200	(2.00	5.97)	3-2	
3057.575	A	100	(1.97	6.01)	2-1	
3085.089	A	200	(1.97	5.97)	2-2	
3022.736	A	200	(2.25	6.33)	4-4	fs^3F^o-fp^1G (5)
3504.596	A	100	(2.29	5.81)	3-3	fs^1F^o-fp^1F (6)
3147.05	A	300	(2.29	6.21)	3-3	fs^1F^o-fp^3D (7)
3057.214	A	200	(2.29	6.33)	3-4	fs^1F^o-fp^1G (8)
3056.556	A	125	(2.29	6.33)	3-2	fs^1F^o-fp^1D (9)

Pr I No analysis May 1942 (Temperature Class)

Pr II I P ? Anal C List B Dec 1941

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4628.751	A	100	0.05	2.72	5-5	a^5I^o-2
4535.921	A	60	0.00	2.72	4-5	(1)
4517.595	A	40	0.05	2.79	5-5	a^5I^o-3 †
•4429.238	A	60	0.00	2.79	4-5	(2)
4744.925	A	40	0.20	2.80	6-6	a^5I^o-4
4487.821	A	20	0.05	2.80	5-6	(3)
4100.746//	A	150	0.55	3.56	8-9	a^5I^o-z^5K
4143.136	A	150	0.37	3.35	7-8	(4)
4179.422	A	150	0.20	3.16	6-7	
4222.98	A	150	0.05	2.98	5-6	
4408.844	A	200	0.00	2.80	4-5	
4405.849	A	80	0.55	3.35	8-8	
•4429.238	A	100	0.37	3.16	7-7	
4449.867	A	150	0.20	2.98	6-6	
•4496.429	A	250	0.05	2.80	5-5	
4734.177	A	25	0.37	2.98	7-6	
4754.635	A	(15)	0.20	2.80	6-5	
4707.541	A	20	0.20	2.83	6-5	a^5I^o-5
4454.382	A	30	0.05	2.83	5-5	(5)
4368.327	A	150	0.00	2.83	4-5	
4651.517	A	75	0.20	2.86	6-6	a^5I^o-6 (6)
4297.764	A	80	0.00	2.87	4-5	a^5I^o-7 (7)
4206.739	A	100	0.55	3.48	8-8	a^5I^o-z^5I
4189.518	A	125	0.37	3.32	7-7	(8)
4164.192	A	100	0.20	3.17	6-6	
4118.481	A	200	0.05	3.05	5-5	
4225.327	A	150	0.00	2.92	4-4	
4458.336	A	25	0.55	3.32	8-7	
4412.155	A	20	0.37	3.17	7-6	
4333.913	A	100	0.20	3.05	6-5	
4305.763	A	100	0.05	2.92	5-4	
3966.573	A	80	0.37	3.48	7-8	
3965.263	A	150	0.20	3.32	6-7	
3964.825	A	250	0.05	3.17	5-6	
4044.818	A	60	0.00	3.05	4-5	
3953.516	A	125	0.55	3.67	8-8	a^5I^o-z^3K †
3997.054	A	40	0.37	3.46	7-7	(9)
4241.019	A	60	0.55	3.46	8-7	
4141.257	A	80	0.55	3.53	8-7	a^5I^o-z^3I
4578.139	A	25	0.37	3.07	7-6	(10)
3908.033	A	150	0.55	3.71	8-7	a^5I^o-z^5H
3918.856	A	150	0.37	3.52	7-6	(11)
3947.633	A	100	0.20	3.33	6-5	
3994.834	A	200	0.05	3.14	5-4	
3908.431	B	200	0.00	3.16	4-3	
3699.952	A	(12)	0.37	3.71	7-7	
3925.456	A	75	0.00	3.14	4-4	
4191.615	A	20	0.20	3.15	6-5	a^5I^o-16
3989.718	A	100	0.05	3.15	5-5	(12)
3920.524	A	15	0.00	3.15	4-5	
4421.231	A	40	0.37	3.16	7-6	a^5I^o-17
4172.273	A	50	0.20	3.16	6-6	(13)
3972.164	A	100	0.05	3.16	5-6	
4081.018	A	50	0.20	3.23	6-5	a^5I^o-19
3889.330	A	75	0.05	3.23	5-5	(14)
3823.571	A	(10)	0.00	3.23	4-5	
4272.271	A	80	0.37	3.26	7-6	a^5I^o-22
4039.357	A	30	0.20	3.26	6-6	(15)
4171.824	A	40	0.37	3.33	7-6	a^5I^o-z^3H
3949.438	A	125	0.20	3.33	6-6	(16)
3769.695	A	30	0.05	3.33	5-6	
3912.898	A	125	0.20	3.36	6-5	a^5I^o-26 (17)
3885.190	A	75	0.20	3.38	6-6	a^5I^o-27 †
•3711.099	A	(25 25)	0.05	3.38	5-6	(18)
4282.440	A	60	0.55	3.43	8-8	a^5I^o-30
4033.857	A	75	0.37	3.43	7-8	(19)
4534.154	A	60	0.63	3.35	7-8	a^3I^o-z^5K
4510.160	A	100	0.42	3.16	6-7	(20)
4468.712	A	150	0.22	2.98	5-6	
4879.121	A	(30)	0.63	3.16	7-7	
4826.649	A	(40)	0.42	2.98	6-6	
5251.738	A	12	0.63	2.98	7-6	
4672.081	A	40	0.22	2.86	5-6	a^3I^o-6 † (21)
4646.059	A	30	0.22	2.87	5-5	a^3I^o-7 (22)
4323.551	A	25	0.63	3.48	7-8	a^3I^o-z^5I
4261.796	A	15	0.42	3.32	6-7	(23)
4180.68	A	(8)	0.22	3.17	5-6	
4589.76	A	(5d)	0.63	3.32	7-7	
4492.437	A	15	0.42	3.17	6-6	
4351.849	A	50	0.22	3.05	5-5	
4561.461	A	(6)	0.22	2.92	5-4	
5292.10	A	60•	0.63	2.96	7-8	a^3I^o-10 (24)
4859.038	A	12	0.42	2.96	6-6	a^3I^o-11 †
•4496.429	A	250	0.22	2.96	5-6	(25)
4056.543	A	80	0.63	3.67	7-8	a^3I^o-z^3K
4062.817	A	125	0.42	3.46	6-7	(26)
4413.765	A	50	0.22	3.01	5-6	
4359.795	A	30	0.63	3.46	7-7	
4762.727	A	20	0.42	3.01	6-6	

Pr II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4254.420	A	20	0.63	3.53	7-7	a^3I^o-z^3I †
4664.647	A	20	0.42	3.07	6-8	(27)
3971.164	A	40	0.42	3.53	6-7	
4329.415	A	25	0.22	3.07	5-8	
4008.714	A	75	0.63	3.71	7-7	a^3I^o-z^5H †
3982.063	A	150	0.42	3.52	6-6	(28)
3962.445	A	40	0.22	3.33	5-5	
4395.788	A	30	0.42	3.23	6-5	a^3I^o-19
4096.822	A	25	0.22	3.23	5-5	(29)
4347.490	A	30	0.42	3.26	6-6	a^3I^o-22 †
4054.845	A	80	0.22	3.26	5-6	(30)
4338.694	A	25	0.42	3.26	6-7	a^3I^o-23 † (31)
4302.100	A	(60)	0.42	3.29	6-5	a^3I^o-25
4015.389	A	40	0.22	3.29	5-5	(32)
4568.545	A	(30)	0.63	3.33	7-6	a^3I^o-z^3H
4243.528	A	20	0.42	3.33	6-6	(33)
3964.261	A	40	0.22	3.33	5-6	
4403.605	A	25	0.63	3.43	7-8	a^3I^o-30 (34)
5110.768	A	60	1.14	3.56	10-9	a^5L^o-z^5K †
5173.898	A	60	0.96	3.35	9-8	(35)
5220.113	A	50	0.79	3.16	8-7	
5259.743	A	80	0.63	2.98	7-6	
5322.778	A	60	0.48	2.80	6-5	
4801.150	A	15	0.48	3.05	6-5	a^5L^o-z^5I † (36)
5034.415	A	20	1.11	3.56	9-9	a^5K^o-z^5K †
5135.125	A	20	0.95	3.35	8-8	(37)
5219.053	A	20	0.79	3.16	7-7	
5292.630	A	30	0.65	2.98	6-6	
5381.262	A	60	0.51	2.80	5-5	
5195.110	A	20	1.11	3.48	9-8	a^5K^o-z^5I
5206.562	A	20	0.95	3.32	8-7	(38)
5195.307	A	30	0.79	3.17	7-6	
5129.520	A	40	0.65	3.05	6-5	
5110.382	A	60	0.51	2.92	5-4	
6025.723	A	20	1.43	3.48	8-8	b^5I^o-z^5I †
6305.262	A	4	1.36	3.32	7-7	(39)
6244.344	A	5	1.19	3.17	6-6	
6161.194	A	50	1.05	3.05	5-5	
6165.945	A	60	0.92	2.92	4-4	

Strongest Unclassified Lines of Pr II

3880.466	B	100	V
3877.225	B	200	V
3865.458	B	100	V
3854.905	B	100	V
3852.805	B	150	V
3851.617	B	200	V
3850.825	B	150	V
3846.605	B	125	V
3830.719	B	125	V
3826.292	B	100	V
3818.281	B	125	V
3816.166	B	125	V
3800.303	B	200	V
3792.524	B	100	V
3772.854	B	100	V
3764.811	B	125	IV
3761.867	B	250	V
3739.193	B	100	IV
3687.039	B	125	IV
3668.830	B	150	IV

Nd I No analysis May 1942 (Temperature Class)

Nd II I P ? Anal C List B Apr 1942

•4959.130§	A	60	0.06	2.55	$4\frac{1}{2}$-$4\frac{1}{2}$	a^6I-1°
4835.982	A	15	0.00	2.55	$3\frac{1}{2}$-$4\frac{1}{2}$	(1)
4920.692	A	60	0.06	2.57	$4\frac{1}{2}$-$3\frac{1}{2}$	a^6I-20830
4799.423	A	10	0.00	2.57	$3\frac{1}{2}$-$3\frac{1}{2}$	(2)
4859.030	A	100	0.32	2.86	$6\frac{1}{2}$-$5\frac{1}{2}$	a^6I-z^6H^o
4825.482	A	150	0.18	2.74	$5\frac{1}{2}$-$4\frac{1}{2}$	(3)
4811.343	A	100	0.06	2.63	$4\frac{1}{2}$-$3\frac{1}{2}$	
•4706.542§	A	100	0.00	2.62	$3\frac{1}{2}$-$2\frac{1}{2}$	
4609.148	A	(1)	0.18	2.86	$5\frac{1}{2}$-$5\frac{1}{2}$	
4612.473	A	4	0.06	2.74	$4\frac{1}{2}$-$4\frac{1}{2}$	
4414.432	A	8	0.06	2.86	$4\frac{1}{2}$-$5\frac{1}{2}$	
4505.75	A	(8)	0.00	2.74	$3\frac{1}{2}$-$4\frac{1}{2}$	
4680.734	A	30	0.06	2.70	$4\frac{1}{2}$-$3\frac{1}{2}$	a^6I-21871 (4)
4569.849	A	2	0.06	2.76	$4\frac{1}{2}$-$3\frac{1}{2}$	a^6I-3°
4465.075	A	10	0.00	2.76	$3\frac{1}{2}$-$3\frac{1}{2}$	(5)
4763.865	A	20	0.18	2.77	$5\frac{1}{2}$-$4\frac{1}{2}$	a^6I-4°
4556.136	A	12	0.06	2.77	$4\frac{1}{2}$-$4\frac{1}{2}$	(6)
4451.978	A	50	0.00	2.77	$3\frac{1}{2}$-$4\frac{1}{2}$	
4709.714	A	20	0.18	2.80	$5\frac{1}{2}$-$5\frac{1}{2}$	a^6I-5° †
4506.582	A	30	0.06	2.80	$4\frac{1}{2}$-$5\frac{1}{2}$	(7)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Nd II continued						
4411.052	A	150	0.18	2.98	5½-5½	$a^6I-z^6I^\circ$ †
4342.071	A	20	0.06	2.91	4½-4½	(8)
4375.039	A	30	0.00	2.82	3½-3½	
4232.378	A	150	0.06	2.98	4½-5½	
4247.367	A	200	0.00	2.91	3½-4½	
4412.265	A	20	0.06	2.86	4½-4½	$a^6I-23171$
4314.511	A	50	0.00	2.86	3½-4½	(9)
4012.250	A	300	0.63	3.70	8½-9½	$a^6I-z^6K^\circ$
4061.085	A	200	0.47	3.51	7½-8½	(10)
4109.455	A	200	0.32	3.32	6½-7½	
4156.083	A	250	0.18	3.15	5½-6½	
4177.331	A	200	0.06	3.02	4½-5½	
4303.573	A	400	0.00	2.87	3½-4½	
4284.518	A	100	0.63	3.51	8½-8½	
4325.766	A	150	0.47	3.32	7½-7½	
4358.169	A	200	0.32	3.15	6½-6½	
4351.295	A	40	0.18	3.02	5½-5½	
4400.828	A	100	0.06	2.87	4½-4½	
4368.632	A	60	0.06	2.89	4½-3½	a^6I-6°
4272.789	A	30	0.00	2.89	3½-3½	(11)
4556.735	A	12	0.18	2.89	5½-4½	a^6I-7°
4366.315	A	12	0.06	2.89	4½-4½	(12)
4270.565	A	25	0.00	2.89	3½-4½	
4465.601	A	10	0.18	2.95	5½-5½	a^6I-8° †
4282.570	A	15	0.06	2.95	4½-5½	(13)
4246.879	A	(10)	0.06	2.97	4½-4½	a^6I-9° †
4156.265	A	30	0.00	2.97	3½-4½	(14)
4374.923	A	20	0.18	3.00	5½-4½	a^6I-10°
4199.099	A	10	0.06	3.00	4½-4½	(15)
4110.472	A	40	0.00	3.00	3½-4½	
4173.379	A	8	0.06	3.02	4½-3½	a^6I-11°
4085.815	A	30	0.00	3.02	3½-3½	(16)
4277.279	A	6	0.18	3.07	5½-5½	a^6I-12° †
4109.073	A	100	0.06	3.07	4½-5½	(17)
4457.179	A	(5)	0.32	3.09	6½-5½	$a^6I-25014$
4080.227	A	50	0.06	3.09	4½-5½	(18)
3973.269	A	80	0.63	3.73	9½-8½	$a^6I-y^6I^\circ$
3990.103	A	60	0.47	3.56	7½-7½	(19)
4020.872	A	60	0.32	3.39	6½-6½	
3951.154	A	150	0.18	3.31	5½-5½	
4018.826	A	30	0.06	3.13	4½-4½	
3991.743	A	80	0.00	3.09	3½-3½	
4205.595	A	40	0.63	3.56	8½-7½	
4227.719	A	30	0.47	3.39	7½-6½	
4133.361	A	50	0.32	3.31	6½-5½	
4179.585	A	30	0.18	3.13	5½-4½	
4075.272	A	50	0.08	3.09	4½-3½	
3780.391	A	20	0.47	3.73	7½-8½	
3805.359	A	100	0.32	3.56	6½-7½	
3848.233	A	50	0.18	3.39	5½-6½	
3807.227	A	(15)	0.06	3.31	4½-5½	
•3937.575§	A	5	0.00	3.13	3½-4½	
4234.196	A	6	0.18	3.10	5½-5½	a^6I-13° †
4069.267	A	80	0.06	3.10	4½-5½	(20)
•3976.836§	A	60	0.00	3.10	3½-3½	$a^6I-25138$
4961.396	A	10	0.63	3.12	8½-7½	(21) $a^6I-25235$
4413.784	A	(5)	0.32	3.12	6½-7½	(22)
4034.012	A	(4)	0.06	3.12	4½-3½	a^6I-14°
3952.195	A	100	0.00	3.12	3½-3½	(23)
4391.110	A	10	0.32	3.13	6½-5½	a^6I-15°
4188.033	A	8	0.18	3.13	5½-5½	(24)
4024.785	A	30	0.06	3.13	4½-5½	
4113.826	A	20	0.18	3.18	5½-4½	a^6I-16°
3958.001	A	40	0.06	3.18	4½-4½	(25)
3863.409	A	60	0.00	3.19	3½-2½	$a^8I-y^6H^\circ$
3941.512	A	150	0.08	3.19	4½-4½	(26) a^6I-17° †
3863.327	A	20	0.00	3.19	3½-4½	(27)
3838.981	A	80	0.00	3.21	3½-2½	$a^6I-26041$
3894.627	A	40	0.06	3.23	4½-5½	(28) $a^6I-26182$
4040.798	A	100	0.18	3.24	5½-6½	(29) a^6I-18°
4038.124	A	20	0.18	3.24	5½-4½	(30) a^6I-19°
•3887.866§	A	30	0.06	3.24	4½-4½	(31)
3811.774	A	20	0.00	3.24	3½-4½	
4220.258	A	20	0.32	3.24	6½-5½	a^6I-21°
4030.470	A	25	0.18	3.24	5½-5½	(32)
3880.779	A	40	0.06	3.24	4½-5½	
3828.416	A	60	0.08	3.29	4½-3½	a^6I-20°
3752.879	A	30	0.00	3.29	3½-3½	(33)
4043.596	A	15	0.32	3.37	6½-6½	a^6I-22°
3869.045	A	30	0.18	3.37	5½-6½	(34)
3851.748	A	60	0.18	3.39	5½-4½	a^8I-23°
3714.808	A	20	0.08	3.39	4½-4½	(35)
4228.200	A	8	0.47	3.39	7½-7½	a^8I-24° †
4021.330	A	80	0.32	3.39	6½-7½	(36)
3973.850	A	60	0.32	3.43	6½-6½	$a^6I-27744$
3814.873	A	(8)	0.08	3.48	4½-4½	(37) $a^6I-28170$
4175.606	A	50	0.83	3.58	8½-8½	(38) $a^6I-29027$
3983.114	A	60	0.47	3.58	7½-8½	(39)
Nd II continued						
3328.370	A	80	0.00	3.71	3½-2½	$a^6I-30037$
3339.063	A	60	0.06	3.76	4½-3½	(40) $a^6I-30453$
3282.777	A	8	0.00	3.76	3½-3½	(41)
3334.471	A	50	0.18	3.88	5½-4½	a^6I-25°
•3231.349§	A	(8)	0.06	3.88	4½-4½	(42)
5255.510	A	50	0.20	2.55	4½-4½	a^4I-1°
5212.365	A	30	0.20	2.57	4½-3½	(43) $a^4I-20830$
5603.651	A	5	0.38	2.58	5½-5½	(44) a^4I-2°
•5191.448§	A	100	0.20	2.58	4½-5½	(45)
5361.174	A	3	0.56	2.86	6½-5½	$a^4I-z^6H^\circ$
5228.427	A	6	0.38	2.74	5½-4½	(46)
5089.837	A	8	0.20	2.63	4½-3½	
•4867.839§	A	3	0.20	2.74	4½-4½?	
4647.759	A	3	0.20	2.86	4½-5½	
4820.336	A	30	0.20	2.76	4½-3½	a^4I-3°
5092.797	A	30	0.38	2.80	5½-5½	(47) a^4I-5° †
4446.387	A	200	0.20	2.98	4½-5½	(48) $a^4I-z^6I^\circ$
4567.606	A	12	0.20	2.91	4½-4½	(49)
4715.589	A	25	0.20	2.82	4½-3½	
4456.394	A	40	0.74	3.51	7½-8½	$a^4I-z^6K^\circ$ †
4462.985	A	250	0.56	3.32	6½-7½	(50)
4451.566	A	400	0.38	3.15	5½-6½	
4385.663	A	150	0.20	3.02	4½-5½	
4597.013	A	20	0.20	2.89	4½-3½	a^4I-6°
4914.385	A	15	0.38	2.89	5½-4½	(51) a^4I-7°
4594.447	A	6	0.20	2.89	4½-4½	(52)
4501.808	A	50	0.20	2.95	4½-5½	a^4I-8° †
4763.624	A	5	0.38	2.97	5½-4½	(53) a^4I-9°
4462.407	A	30	0.20	2.97	4½-4½	(54)
4703.578	A	15	0.38	3.00	5½-4½	a^4I-10°
4381.290	A	(10)	0.20	3.02	4½-3½	(55) a^4I-11°
4120.654	A	6	0.74	3.73	7½-8½	(56) $a^4I-y^6I^\circ$
4106.582	A	8	0.56	3.56	6½-7½	(57)
4100.340	A	15	0.38	3.39	5½-6½	
3979.479	A	60	0.20	3.31	4½-5½	
4371.069	A	(10)	0.74	3.56	7½-7½	
4358.699	A	15	0.56	3.39	6½-6½	
4217.282	A	5	0.38	3.31	5½-5½	
4211.286	A	40	0.20	3.13	4½-4½	
4541.289	A	50	0.38	3.10	5½-5½	a^4I-13°
4266.716	A	30	0.20	3.10	4½-5½	(58)
4256.239	A	8	0.20	3.10	4½-3½	$a^4I-25138$
4797.157	A	20	0.56	3.13	6½-5½	(59) a^4I-15° †
4144.553	A	20	0.20	3.18	4½-4½	(60) a^4I-16°
4075.116	A	60	0.20	3.23	4½-5½	(61) $a^4I-26182$ †
4307.778	A	15	0.38	3.24	5½-5½	(62) a^4I-21°
4059.961	A	50	0.20	3.24	4½-5½	(63)
4000.493	A	30	0.20	3.29	4½-3½	a^4I-20°
4123.881	A	40	0.38	3.37	5½-6½	(64) a^4I-22°
4051.145	A	60	0.38	3.43	5½-6½	(65) $a^4I-27744$ †
3982.355	A	20	0.38	3.48	5½-4½	(66) $a^4I-28170$
3769.644	A	40	0.20	3.48	4½-4½	(67)
4338.697	A	80	0.74	3.58	7½-8½	$a^4I-29027$
3811.073	A	20	0.38	3.62	5½-4½	(68) $a^4I-29398$
3615.817	A	30	0.20	3.62	4½-4½	(69)
3470.866	A	20	0.20	3.76	4½-3½	$a^4I-30453$
3522.044	A	25	0.38	3.88	5½-4½	(70) a^4I-25°
3354.621	A	10	0.20	3.88	4½-4½	(71)
6257.834	A	(25)	0.55	2.55	5½-4½	a^6L-1°
5548.474	A	8	0.55	2.77	5½-4½	(72) a^6L-4°
5361.474	A	60	0.68	2.98	6½-5½	(73) $a^6L-z^6I^\circ$
5234.195	A	50	0.55	2.91	5½-4½	(74)
5130.596	A	40	1.30	3.70	10½-9½	$a^6L-z^6K^\circ$ †
5192.621	A	80	1.13	3.51	9½-8½	(75)
5249.585	A	100	0.97	3.32	8½-7½	
5293.168	A	100	0.82	3.15	7½-6½	
5273.431	A	50	0.68	3.02	6½-5½	
5319.818	A	125	0.55	2.87	5½-4½	
5442.274	A	40	0.68	2.95	6½-5½	a^6L-8°
5165.140	A	10	0.68	3.07	6½-5½	(76) a^6L-12°
5934.747	A	(10)	0.74	2.82	4½-3½	(77) $a^6K-z^6I^\circ$
5811.572	A	12	0.88	2.98	5½-5½	(78)
5702.244	A	20	0.74	2.91	4½-4½	
5371.935	A	20	1.41	3.70	9½-9½	$a^6K-z^6K^\circ$ †
5485.899	A	80	1.26	3.51	8½-8½	(79)
5594.425	A	150	1.12	3.32	7½-7½	
5688.525	A	150	0.98	3.15	6½-6½	
Nd II continued						
5708.280	A	40	0.86	3.02	5½-5½	$a^6K-z^6K^\circ$
5804.020	A	60	0.74	2.87	4½-4½	cont
5421.559	A	20	0.74	3.02	4½-5½?	
5302.279	A	6	1.41	3.73	9½-8½	$a^6K-y^6I^\circ$
•5356.976§	A	15	1.26	3.56	8½-7½	(80)
5431.526	A	40	1.12	3.39	7½-6½	
5311.461	A	12	0.98	3.31	6½-5½	
5416.381	A	15	0.86	3.13	5½-4½	
5250.816	A	8	0.74	3.09	4½-3½	
5276.879	A	8	0.86	3.19	5½-4½	a^6K-17°
5474.734	A	10	0.98	3.24	6½-6½	(81) a^6K-18°
5455.815	A	20	0.98	3.24	6½-5½	(82) a^6K-21°
5668.868	A	15	1.41	3.58	9½-8½	(83) $a^6K-29023$
•6385.196§	A	150	1.16	3.09	5½-5½?	(84) $b^6I-25014$
•5620.62 §	P	500	1.54	3.73	8½-8½	(85) $b^6I-y^6I^\circ$
5718.120	A	12	1.40	3.56	7½-7½	(86)
5842.391	A	8	1.28	3.39	6½-6½	
5740.862	A	15	1.16	3.31	5½-5½	
5891.528	A	15	1.04	3.13	4½-4½	
5706.206	A	15	0.93	3.09	3½-3½	
5614.303	A	(10)	1.04	3.24	4½-4½	b^6I-19°
						(87)

Strongest Unclassified Lines of Nd II

5451.115	B	100	IV
4632.276	B	20	III
4542.603	B	60	IV
4282.443	B	50	IV
•4135.325	B	50	IV
4031.807	B	100	IV
4023.002	B	80	IV
4012.704	B	50	III
4007.435	B	50	IV
4004.010	B	60	III
3994.684	B	80	III
3953.525	B	60	IV
3934.833	B	50	IV
3920.965	B	100	III
3911.169	B	60	IV
3905.886	B	100	III
3901.850	B	50	IV
3900.226	B	60	III
3890.940	B	60	III
3890.580	B	50	IV
3889.929	B	50	IV
3878.582	C	50	IV
3848.524	B	80	IV
3836.541	B	60	IV
3814.735	B	60	III
3808.772	B	30	III
3803.474	B	40	III
3784.250	B	80	III
3763.475	B	60	III
3758.944	B	40	III
3741.427	B	50	III
3728.130	B	50	III
3723.506	B	50	III
3685.804	C	60	IV
3673.542	C	50	V
3672.363	C	50	V
3665.180	B	50	IV
3609.788	B	40	III
3592.595	B	60	IV
3587.504	B	50	IV
3543.352	B	50	IV
3393.641	B	60	IV
3364.950	B	50	IV
3300.148	B	70	IV
3285.093	B	50	IV
3275.218	B	60	IV
3134.897	B	50	V
3133.603	B	100	V
3118.141	B	60	V
3115.172	B	100	V
3098.476	B	50	V
3092.915	B	60	V
3075.380	B	50d	V
3014.165	B	60	V
3007.975	B	50	V

Sm I I P 5.6? Anal C List D Apr 1942

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
6671.51	A	800	0.50	2.35	6-7	$a^7F-z^9G^\circ$
6588.91	A	500	0.39	2.26	5-6	(1)
5659.86	B	400	0.10	2.28	2-1	a^7F-38°
•5516.09	B	500d	(0.04 0.28	2.27 2.52	1-2 4-	(2) 37° 59°)
4841.701	B	400	0.50	3.05	6-5	102°
3925.216	B	400	0.10	3.24	2-1	118°
•3756.411§	B	600	0.10	3.39	2-3	127°
4296.743//	B	300	0.50	3.37	6-7	$a^7F-z^7G^\circ$ (3)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Sm II I P 11.4 Anal B List C Mar 1942						
4704.397	A	500	0.00	2.62	½- ½	a⁸F-1°
4648.160	A	100	0.00	2.66	½-1½	(1) 2°
4606.514	A	100	0.00	2.68	½-1½	5°
4092.266	A	400	0.00	3.02	½-1½	23°
3970.528	A	200	0.00	3.11	½-1½	35°
3941.874	A	300	0.00	3.13	½-1½	37°
3745.605	A	200d	0.00	3.29	½- ½	a⁸F-z⁸G°
•3693.989§	A	1200	0.00	3.34	½-1½	(2) z⁸G°
3304.523	A	200	0.00	3.73	½- ½	124°
3250.372	A	200d	0.00	3.80	½-1½	129°
3207.185	A	400	0.00	3.85	½-1½	134°
4777.846	A	200	0.04	2.62	1½- ½	a⁸F-1°
4719.838	A	200	0.04	2.66	1½-1½	(3) 2°
4687.183	A	400	0.04	2.67	1½- ½	4°
4676.911	A	500	0.04	2.68	1½-1½	5°
4523.037	A	150	0.04	2.77	1½-2½	9°
4389.704	A	300	0.04	2.96	1½-1½	a⁸F-18°
4183.764	A	150	0.04	2.99	1½- ½	(4) 20°
4042.723	A	200	0.04	3.09	1½-1½	33°
4033.231	A	300	0.04	3.11	1½-2½	34°
3993.308	A	200	0.04	3.13	1½-1½	37°
3896.977	A	600	0.04	3.21	1½-2½	a⁸F-47°
3792.025	A	150	0.04	3.29	1½- ½	(5) z⁸G°
3787.203	A	100	0.04	3.30	1½-1½	61°
3739.197	A	200	0.04	3.34	1½-1½	z⁸G°
3724.902	A	200	0.04	3.35	1½-2½	72°
3708.410	A	200	0.04	3.37	1½-2½	76°
3661.365	A	1000	0.04	3.41	1½-2½	a⁸F-z⁸G°
3634.928	A	200	0.04	3.44	1½-1½	(6) 85°
3622.504	A	100	0.04	3.45	1½-2½	86°
3340.579	A	800	0.04	3.73	1½- ½	124°
3254.377	A	500	0.04	3.83	1½-2½	133°
3241.161	A	500	0.04	3.85	1½-1½	134°
4791.584	A	200	0.10	2.68	2½-1½	a⁸F-5°
4745.680	A	500	0.10	2.70	2½-1½	(7) 6°
4669.396	A	500	0.10	2.75	2½-2½	8°
4458.517	A	400	0.10	2.87	2½-3½	14°
4345.858	A	150	0.10	2.94	2½-2½	17°
4323.284	A	200	0.10	2.96	2½-1½	a⁸F-18°
4237.663	A	200	0.10	3.02	2½-1½	(8) 23°
4210.352	A	150	0.10	3.03	2½-2½	24°
•4155.217	A	100	0.10	3.07	2½-3½	30°
4149.831	A	200	0.10	3.08	2½-2½	32°
4042.905	A	250	0.10	3.16	2½-3½	a⁸F-42°
3976.270	A	200	0.10	3.21	2½-2½	(9) 47°
3948.113	A	300	0.10	3.23	2½-3½	50°
3943.239	A	200	0.10	3.23	2½-2½	51°
3917.442	A	200	0.10	3.25	2½-2½	54°
3880.766	A	150	0.10	3.28	2½-1½	a⁸F-59°
3862.054	A	150	0.10	3.30	2½-1½	(10) 61°
3830.293	A	200	0.10	3.33	2½-3½	66°
3812.067	A	150	0.10	3.34	2½-1½	z⁸G°
3805.626	A	200	0.10	3.35	2½-3½	71°
3797.283	A	150	0.10	3.35	2½-2½	a⁸F-72°
3793.971	A	500	0.10	3.36	2½-3½	(11) 73°
3731.258	A	600	0.10	3.41	2½-2½	z⁸G°
3688.418	A	100	0.10	3.45	2½-1½	87°
3670.840	A	1000	0.10	3.47	2½-3½	z⁸G°
3627.971	A	100	0.10	3.51	2½-2½	a⁸F-95°
3623.316	A	200	0.10	3.51	2½-2½	(12) 96°
3621.229	A	600	0.10	3.51	2½-3½	97°
3584.259	A	100	0.10	3.55	2½-3½	103°
3511.227	A	150	0.10	3.62	2½-	108°
3295.813	A	300	0.10	3.85	2½-1½	a⁸F-134°
3231.528	A	200	0.10	3.92	2½-3½	(13) 139°
3216.850	A	300	0.10	3.94	2½-3½	141°
•3187.216	A	300	0.10	3.98	2½-3½	144°
4815.808	A	400	0.18	2.75	3½-2½	a⁸F- 8°
4693.628	A	150	0.18	2.81	3½-3½	(14) 11°
4674.599	A	600	0.18	2.82	3½-3½	12°
4591.818	A	100	0.18	2.87	3½-3½	14°
4511.829	A	200	0.18	2.92	3½-4½	15°
4390.858	A	600	0.18	2.99	3½-4½	a⁸F-21°
4329.016	A	400	0.18	3.03	3½-2½	(15) 24°
4309.012	A	200	0.18	3.05	3½-3½	27°
4265.075	A	100d	0.18	3.08	3½-2½	32°
•4220.659	A	200	0.18	3.11	3½-2½	34°
•4178.019	A	100d	0.18	3.14	3½-2½	a⁸F-39°
4152.209	A	200	0.18	3.16	3½-3½	(16) 42°
4113.902	A	100	0.18	3.18	3½-3½	45°
4047.160	A	80	0.18	3.23	3½-2½	51°
4019.982	A	80	0.18	3.25	3½-2½	54°
3986.682	A	150	0.18	3.28	3½-4½	a⁸F-58°
3946.511	A	200	0.18	3.31	3½-4½	(17) 63°
3928.279	A	400	0.18	3.33	3½-3½	66°
3890.080	A	200	0.18	3.36	3½-3½	73°
3875.545	A	200	0.18	3.37	3½-2½	76°
3871.778	A	300	0.18	3.37	3½-4½	a⁸F-77°
3835.725	A	100d	0.18	3.40	3½-	(18) 81°
3824.175	A	200	0.18	3.41	3½-2½	z⁸G°
•3760.694	A	500	0.18	3.47	3½-3½	z⁸G°
•3743.868	A	500	0.18	3.48	3½-4½	92°
3738.805	A	100	0.18	3.50	3½-4½	a⁸F-94°
3710.869	A	100	0.18	3.51	3½-2½	(19) 96°
3708.654	A	300	0.18	3.51	3½-3½	97°
3845.290	A	300	0.18	3.57	3½-4½	103°
3834.290	A	1500d?	0.18	3.58	3½-4½	z⁸G°
Sm II continued						
3601.692	A	200	0.18	3.61	3½-3½	a⁸F-107°
3583.394	A	150	0.18	3.63	3½-4½	(20) 110°
3530.600	A	150	0.18	3.68	3½-4½	118°
3382.399	A	600	0.18	3.83	3½-2½	133°
3320.155	A	600d	0.18	3.90	3½-2½	136°
3312.415	A	400	0.18	3.91	3½-2½	a⁸F-137°
•3301.678	A	100	0.18	3.92	3½-4½	(21) 138°
3285.664	A	200	0.18	3.94	3½-3½	141°
3230.559	A	400	0.18	4.00	3½-4½	146°
3187.006	A	200	0.18	4.06	3½-4½	149°
3178.125	A	200	0.18	4.07	3½-4½	151°
4615.690	A	300	0.19	2.86	½-1½	a⁶F-13°
4403.360	A	100	0.19	2.99	½- ½	(22) 20°
4225.328	A	400	0.19	3.11	½-1½	35°
4041.675	A	200	0.19	3.24	½- ½	53°
3891.210	A	100	0.19	3.36	½- ½	74°
3799.542	A	300	0.19	3.44	½-1½	85°
3241.586	A	100	0.19	3.99	½-1½	145°
4938.100	A	100	0.25	2.75	1½-2½	a⁶F-8°
4577.690	A	250	0.25	2.94	1½-2½	(23) 17°
4552.659	A	150	0.25	2.96	1½-1½	18°
4499.475	A	125	0.25	2.99	1½- ½	20°
4360.720	A	150	0.25	3.08	1½-2½	32°
4169.478	A	200	0.25	3.21	1½-2½	a⁶F-47°
4129.231	A	100	0.25	3.24	1½-2½	(24) 52°
4083.584	A	100	0.25	3.27	1½-1½	55°
•4064.576	A	300	0.25	3.28	1½-1½	59°
3966.045	A	150	0.25	3.36	1½- ½	74°
3788.125	A	400	0.25	3.51	1½-2½	a⁶F-95°
3762.588	A	200	0.25	3.53	1½-2½	(25) 99°
3712.764	A	200	0.25	3.57	1½-2½	104°
3711.543	A	200	0.25	3.57	1½-1½	105°
3650.188	A	200	0.25	3.63	1½-2½	111°
3214.125	A	150	0.25	4.09	1½-2½	152°
4844.208	A	300	0.28	2.82	4½-3½	a⁸F-12°
4669.650	A	500	0.28	2.92	4½-4½	(26) 15°
4646.684	A	200	0.28	2.93	4½-4½	16°
4473.015	A	150	0.28	3.04	4½-5½	25°
4452.727	A	250	0.28	3.05	4½-3½	27°
4334.153	A	400	0.28	3.12	4½-3½	a⁸F-36°
4318.936	A	500	0.28	3.13	4½-5½	(27) 38°
4285.496	A	200	0.28	3.16	4½-3½	42°
4279.678	A	200	0.28	3.16	4½-4½	43°
4244.702	A	200	0.28	3.18	4½-3½	45°
4109.405	A	150	0.28	3.28	4½-4½	a⁸F-58°
4066.737	A	200	0.28	3.31	4½-4½	(28) 63°
3987.428	A	80	0.28	3.37	4½-4½	77°
3935.764	A	150	0.28	3.41	4½-5½	83°
3857.912	A	100	0.28	3.48	4½-5½	91°
3851.880	A	150	0.28	3.48	4½-4½	a⁸F-92°
3833.828	A	200	0.28	3.50	4½-4½	(29) 94°
3800.887	A	400	0.28	3.52	4½-5½	98°
3735.980	A	500	0.28	3.58	4½-4½	z⁸G°
3692.221	A	150	0.28	3.62	4½-5½	109°
•3667.932§	A	150d	0.28	3.64	4½-5½	a⁸F-112°
3627.014	A	400	0.28	3.68	4½-5½	(30) 117°
3609.491	A	1200	0.28	3.70	4½-5½	z⁸G°
•3384.658	A	300	0.28	3.92	4½-3½	139°
3368.568	A	200	0.28	3.94	4½-3½	141°
3336.124	A	200	0.28	3.98	4½-3½	a⁸F-144°
3310.661	A	500	0.28	4.00	4½-4½	(31) 146°
3187.787	A	200	0.28	4.15	4½-5½	155°
3169.875	A	250	0.28	4.17	4½-5½	157°
4952.371	A	150	0.33	2.82	2½-3½	a⁶F-12°
4566.206	A	200	0.33	3.03	2½-2½	(32) 24°
4543.948	A	250	0.33	3.05	2½-3½	27°
4420.526	A	200	0.33	3.12	2½-3½	36°
4292.182	A	150	0.33	3.21	2½-2½	47°
•4064.576	A	300	0.33	3.37	2½-2½	a⁶F-76°
4035.110	A	250	0.33	3.39	2½-	(33) 79°
3976.430	A	200	0.33	3.44	2½-1½	85°
3947.838	A	100	0.33	3.46	2½-1½	88°
3881.383	A	100	0.33	3.51	2½-3½	97°
3847.511	A	150	0.33	3.54	2½-3½	a⁶F-100°
3838.941	A	200	0.33	3.55	2½-2½	(34) 102°
3764.370	A	300	0.33	3.61	2½-3½	107°
3755.276	A	200	0.33	3.62	2½-	108°
•3743.868	A	500	0.33	3.63	2½-2½	111°
•3707.167§	A	100d	0.33	3.66	2½-1½	a⁶F-116°
3645.387	A	200	0.33	3.72	2½-3½	(35) 123°
3369.455	A	200	0.33	3.99	2½-1½	145°
3305.185	A	200	0.33	4.07	2½-2½	150°
4854.365	A	150	0.38	2.92	5½-4½	a⁸F-15°
4829.568	A	250	0.38	2.93	5½-4½	(36) 16°
4643.235	A	500	0.38	3.04	5½-5½	25°
4593.544	A	150	0.38	3.06	5½-5½	28°
4434.323	A	400	0.38	3.16	5½-4½	43°
4421.138	A	200	0.38	3.17	5½-6½	a⁸F-44°
4388.031	A	150d	0.38	3.20	5½-6½	(37) 46°
4347.801	A	400	0.38	3.22	5½-4½	49°
4262.677	A	300	0.38	3.27	5½-5½	56°
4256.393	A	400	0.38	3.28	5½-6½	57°
4206.128	A	100	0.38	3.31	5½-4½	a⁸F-63°
3983.138	A	200	0.38	3.48	5½-5½	(38) 91°
3922.397	A	800	0.38	3.52	5½-5½	98°
3780.927	A	150	0.38	3.64	5½-5½	112°
3718.877	A	500	0.38	3.70	5½-5½	z⁸G°
Sm II continued						
3662.905	A	200	0.38	3.75	5½-4½	a⁸F-125°
3592.603	A	1500	0.38	3.81	5½-6½	(39) z⁸G°
3402.464	A	500	0.38	4.00	5½-4½	146°
•3384.658	A	300	0.38	4.02	5½-5½	147°
3354.185	A	150	0.38	4.06	5½-4½	149°
3344.353	A	200	0.38	4.07	5½-4½	151°
3321.179	A	800	0.38	4.09	5½-5½	a⁸F-153°
3272.807	A	200	0.38	4.15	5½-5½	(40) 155°
3253.943	A	200	0.38	4.17	5½-5½	157°
3215.262	A	200	0.38	4.22	5½-6½	162°
3196.182	A	150	0.38	4.24	5½-5½	164°
•3187.216	A	300	0.38	4.25	5½-5½	166°
4961.936	A	250	0.43	2.92	3½-4½	a⁶F-15°
4816.012	A	100	0.43	2.99	3½-4½	(41) 21°
4717.718	A	150	0.43	3.05	3½-3½	27°
4523.912	A	250	0.43	3.16	3½-4½	43°
4433.885	A	300	0.43	3.22	3½-4½	49°
4373.462	A	100	0.43	3.25	3½-2½	a⁶F-54°
4286.640	A	100	0.43	3.31	3½-4½	(42) 63°
4234.573	A	200	0.43	3.35	3½-3½	71°
4203.051	A	125	0.43	3.37	3½-2½	76°
4068.334	A	100	0.43	3.47	3½-3½	z⁸G°
3971.397	A	300	0.43	3.54	3½-2½	a⁶F-100°
3843.500	A	200	0.43	3.64	3½-3½	(43) 113°
3831.501	A	400	0.43	3.65	3½-4½	114°
3800.370	A	100	0.43	3.68	3½-4½	118°
•3774.294	A	150	0.43	3.70	3½-2½	122°
•3756.411§	A	600	0.43	3.72	3½-3½	a⁶F-123°
3535.653	A	150	0.43	3.92	3½-3½	(44) 139°
3396.187	A	250	0.43	4.07	3½-2½	150°
4834.618	A	100	0.48	3.04	6½-5½	a⁸F-25°
4595.291	A	250	0.48	3.17	6½-6½	(45) 44°
4537.952	A	200	0.48	3.20	6½-6½	46°
4424.339	A	600	0.48	3.27	6½-5½	56°
4362.040	A	300	0.48	3.31	6½-5½	64°
4350.465	A	300d	0.48	3.32	6½-7½	a⁸F-65°
4280.789	A	400	0.48	3.37	6½-7½	(46) 75°
4123.956	A	150	0.48	3.48	6½-5½	91°
3885.286	A	1000	0.48	3.66	6½-6½	115°
3767.358	A	200	0.48	3.76	6½-6½	126°
3706.752	A	300	0.48	3.81	6½-6½	a⁸F-z⁸G°
3649.527	A	500	0.48	3.76	6½-6½	(47) 126°
3604.285	A	800	0.48	3.91	6½-7½	128°
3568.271	A	1500	0.48	3.94	6½-7½	z⁸G°
3418.514	A	500	0.48	4.09	6½-5½	153°
3347.298	A	150	0.48	4.17	6½-5½	a⁸F-157°
•3306.388	A	500	0.48	4.22	6½-6½	(48) 162°
•3301.678	A	100	0.48	4.22	6½-6½	183°
3286.229	A	300	0.48	4.24	6½-5½	164°
3276.747	A	200	0.48	4.25	6½-5½	166°
3239.657	A	300	0.48	4.29	6½-6½	168°
4948.627	A	150	0.54	3.04	4½-5½	a⁶F-25°
4713.057	A	150	0.54	3.16	4½-4½	(49) 43°
4615.441	A	150	0.54	3.22	4½-4½	49°
4519.633	A	200	0.54	3.27	4½-5½	56°
4454.629	A	200	0.54	3.31	4½-5½	64°
•4220.659	A	200	0.54	3.47	4½-3½	a⁶F-z⁸G°
4188.128	A	200	0.54	3.49	4½-3½	(50) 93°
•4178.019	A	100d	0.54	3.50	4½-4½	94°
•4155.217	A	100	0.54	3.51	4½-3½	97°
4107.387	A	200	0.54	3.55	4½-4½	101°
4075.845	A	250	0.54	3.57	4½-4½	a⁶F-103°
3979.200	A	150	0.54	3.64	4½-3½	(51) 113°
3826.202	A	400	0.54	3.77	4½-4½	127°
•3760.694	A	500	0.54	3.82	4½-4½	173°
3650.998	A	150	0.54	3.92	4½-4½	138°
3389.325	A	200	0.54	4.18	4½-3½	a⁶F-159°
3371.209	A	150	0.54	4.20	4½-3½	(52) 161°
3333.635	A	150	0.54	4.24	4½-4½	165°
3228.784	A	200	0.54	4.36	4½-	171°
4913.248	A	150	0.66	3.17	5½-6½	a⁶F-44°
4847.760	A	200	0.66	3.20	5½-6½	(53) 46°
4718.329	A	150	0.66	3.27	5½-5½	56°
4467.342	A	500	0.66	3.42	5½-6½	84°
4378.236	A	150	0.66	3.48	5½-5½	91°
4236.745	A	250	0.66	3.57	5½-4½	103°
4153.332	A	100	0.66	3.63	5½-4½	a⁶F-110°
4118.551	A	400	0.66	3.65	5½-4½	(54) 114°
4082.600	A	100d	0.66	3.68	5½-4½	118°
3728.469	A	400	0.66	3.97	5½-6½	143°
3467.874	A	100	0.66	4.22	5½-6½	162°
3440.502	A	100	0.66	4.24	5½-4½	165°
7082.37	A	400d	0.88	2.62	1½- ½	a⁸H-1°
6862.82	A	150d	0.88	2.68	1½-1½	(55) 5°
6790.00	A	200d	0.93	2.75	2½-2½	a⁸H-8°
5116.700	A	100d	0.93	3.34	2½-1½	(56) z⁸G°
•7039.22	A	600d	0.99	2.75	3½-2½	a⁸H-8° (57)
7042.24	A	500d	1.07	2.82	4½-3½	a⁸H-13°
6856.03	A	400d	1.07	2.87	4½-3½	(58) 14°

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Sm II continued						
7020.44	A	800d	1.16	2.92	5½-4½	a^8H-15°
6731.84	A	500d	1.16	2.99	5½-4½	(59) 21°
6472.34	A	300d	1.37	3.28	7½-6½	a^8H-57° (60)
8033.03	A	250d	1.41	2.94	3½-2½	a^8G-17°
*7039.22	A	600d	1.41	3.16	3½-4½	(61) 43°
6569.31	A	1000d	1.49	3.37	8½-7½	a^8H-75° (63)
8025.12	A	400	1.51	3.05	3½-3½	b^8F-27° (63)
8510.90	A	200d	1.59	3.04	4½-5½	b F-25°
8348.68	A	150d	1.59	3.06	4½-5½	(64) 28°
7837.27	A	400	1.59	3.16	4½-4½	43°
7928.14	A	800	1.60	3.16	3½-4½	a^8P-43° (65)
8485.99	A	400d	1.68	3.13	6½-5½	a^8G-38° (66)
8048.70	A	400d	1.74	3.27	6½-5½	b^8F-56°
8026.32	A	500d	1.74	3.28	6½-6½	(67) 57°
8062.46	A	800	1.74	3.27	4½-5½	a^8P-56° (68)
8305.79	A	500d	1.79	3.28	7½-6½	a^8G-57°
7835.08	A	400d	1.79	3.27	7½-7½	(69) 75°

Strongest Unclassified Lines of Sm II

4515.094	A	150	III
4478.657	A	125	IV
4444.259	A	150	IV
4352.101	A	200	IV
4281.009	A	100	III
3962.995	A	200d	III
3959.527	A	100	III
3903.417	A	500	III
3875.193	A	100	III
3854.209	A	300	III
3848.779	A	200d	IV
3797.730	A	600	III
3780.763	A	200	III
3778.136	A	400	III
3767.755	A	150	III
3758.968	A	200	III
3757.529	A	300	III
3741.288	A	300	III
3739.117	A	300	III
3737.141	A	200	III
3721.847	A	400	III
3712.109	A	100	III
3706.979	A	200	IV
3700.922	A	150	IV
3677.793	A	200	III
3670.677	A	150	III
3662.693	A	200	IV
3656.221	A	200	IV
3838.767	A	400	IV
3831.126	A	400	III
3580.941	A	200	III
3566.838	A	150	III
3559.101	A	300d	III
3418.151	A	300	IV
3408.676	A	400	IV
3365.863	A	400	III
3350.875	A	200	IV
3348.683	A	200	IV
3343.494	A	200	IV
3325.258	A	300	IV
3316.579	A	300	IV
3307.017	A	500	IV
3298.104	A	500	III
3273.483	A	500	III
3253.401	A	300	IV
3236.638	A	500	IV
3218.614	A	300	IV
3211.734	A	400	IV
3193.014	A	300	IV
3183.916	A	400	IV
3152.525	A	300	IV

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Eu I I P 5.64 Anal A List D Apr 1943						
4594.03//	A	10000R	0.00	2.69	3½-4½	a^8S^o-y^8P
4627.22	A	8000R	0.00	2.67	3½-3½	(1)
4661.88	A	7000R	0.00	2.65	3½-2½	
Eu II I P 11.21 Anal B List C May 1943						
3819.67//	A	6000R	0.00	3.23	4-5	a^9S^o-z^9P
4129.73	A	5000r	0.00	2.99	4-4	(1)
4205.05	A	6000r	0.00	2.93	4-3	
3724.94	A	4000	0.00	3.31	4-4	a^9G^o-z^7P
3688.42	A	1500	0.00	3.35	4-3	(2)
2991.33	A	300	0.00	4.13	4-5	a^9S^o-z^9D
3077.358	A	200	0.00	4.01	4-4	(3)
3173.607	A	100	0.00	3.89	4-3	
4435.58	A	3000	0.21	2.99	3-4	a^7S^o-z^9P
4522.59	A	2000	0.21	2.93	3-3	(4)
3971.98	A	4000r	0.21	3.31	3-4	a^7S^o-z^7P
3930.50	A	4000r	0.21	3.35	3-3	(5)
3907.10	A	3000r	0.21	3.36	3-2	
3097.45	A	100	0.21	4.19	3-2	a^7S^o-103 (6)
3054.94	A	600	0.21	4.25	3-3	a^7S^o-y^9P † (7)
6645.11	A	8000	1.37	3.23	6-5	a^9D^o-z^9P
7370.22	A	2500	1.31	2.99	5-4	(8)
7426.57	A	1500	1.27	2.93	4-3	
6437.64	A	4000	1.31	3.23	5-5	
7194.81	A	1500	1.27	2.99	4-4	
7301.17	A	2500	1.24	2.93	3-3	
6303.41	A	2000	1.27	3.23	4-5	
7077.10	A	3000	1.24	2.99	3-4	
7217.55	A	1500	1.22	2.93	2-3	
6173.05	A	2000	1.31	3.31	5-4	a^9D^o-z^7P †
6049.51	A	2000	1.27	3.31	4-4	(9)
5872.98	A	500	1.24	3.35	3-3	
5966.07	A	1200	1.24	3.31	3-4	
5818.74	A	1000	1.22	3.35	2-3	
*3917.29 §	A	60	1.37	4.52	6-5	a^9D^o-y^9P †
4017.58	A	100	1.31	4.39	5-4	(10)
4151.52	A	20	1.27	4.25	4-3	
*3964.90 §	A	60	1.27	4.39	4-4	
4112.04	A	30	1.24	4.25	3-3	
3928.87	A	15	1.24	4.39	3-4	
4085.38	A	40	1.22	4.25	2-3	
3741.31	A	400	1.37	4.67	6-5	a^9D^o-x^9P †
3761.12	A	300	1.31	4.60	5-4	(11)
3799.009	A	100	1.27	4.52	4-3	
3674.634	A	50	1.31	4.67	5-5	
3714.904	A	100	1.27	4.60	4-4	
3765.93	A	150	1.24	4.52	3-3	
3683.267	A	40	1.24	4.60	3-4	
3743.556	A	100	1.22	4.52	2-3	
3713.45	A	125	1.24	4.57	3-2	a^9D^o-115 (12)
3508.852	A	20	1.31	4.83	5-4	a^9D^o-y^7P
3508.731	A	10	1.27	4.79	4-3	(13)
3646.75	A	35	1.22	4.61	2-2	
3440.999	A	80	1.24	4.83	3-4	
3461.38	A	80	1.22	4.79	2-3	
3710.870	A	80	1.31	4.64	5-6	a^9D^o-118 † (14)
3811.57	A	100	1.27	4.69	4-4	a^9D^o-121 † (15)
3603.20	A	200	1.27	4.70	4-4	a^9D^o-122 † (16)
3391.989	A	100	1.24	4.88	3-4	a^9D^o-x^7P †
3542.152	A	80	1.22	4.71	2-2	(17)
3622.54	A	150	1.37	4.78	6-7	a^9D^o-125 (18)
3552.516	A	100	1.31	4.79	5-5	a^9D^o-126 † (19)
3369.055	A	200	1.31	4.98	5-6	a^9D^o-131
3425.022	A	80	1.37	4.98	6-6	(20)
3321.857	A	100	1.37	5.09	6-5	a^9D^o-134 (21)
4355.09	A	300	3.23	6.06	5-4	z^9P-e^9G^o
4011.89	A	100	2.99	6.06	4-4	(22)
3943.08	A	40	2.93	6.06	3-4	
3380.25	A	100	2.99	8.84	4-4	z^9P-1° (23)
3521.09	A	100	3.23	8.74	5-6	z^9P-e^9D^o †
3301.95	A	150	2.99	6.73	4-5	(24)
3266.39	A	200	2.93	6.71	3-4	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Eu II continued						
3531.151	A	60	3.23	6.73	5-5	z^9P-e^9D^o †
3313.33	A	400	2.99	6.71	4-4	(24)
3272.77	A	400	2.93	6.71	3-3	cont
3319.89	A	80	2.99	6.71	4-3	
3277.78	A	600	2.93	6.70	3-2	
3308.02	A	200	2.99	6.72	4-5	z^9P-e^7D^o † (25)
4485.15	A	100	3.31	6.06	4-4	z^7P-e^9S^o † (26)
4383.17	A	200	3.31	6.13	4-3	z^7P-e^7S^o †
4464.97	A	200	3.36	6.13	2-3	(27)
3616.152	A	100	3.31	6.73	4-5	z^7P-e^9D^o †
3673.19	A	80	3.35	6.71	3-3	(28)
3678.259	A	100	3.36	6.72	2-1	z^7P-e^7D^o † (29)
3396.58	A	200	3.31	6.95	4-5	z^7P-f^7D^o † (30)

Strongest Unclassified Lines of Eu II

3861.18	A	80	V
3815.495	A	80	V
3738.08	A	80	V
3717.69	A	80	V
3687.78	A	80	V
3679.500	A	80	V
3390.783	A	80	V
3130.73	A	80	V

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Gd I I P 6.16 Anal C List D June 1943						
7168.37	A	3000	0.21	1.93	6-5	a^9D^o-z^9P †
7733.50	A	1500	0.12	1.72	5-4	(1)
6730.73	A	1500	0.12	1.96	5-6	a^9D^o-$z^{11}F$ †
6828.25	A	1500	0.07	1.87	4-5	(2)
6916.57	A	2000	0.03	1.81	3-4	
6991.92	A	1500	0.00	1.77	2-3	
5856.22	A	4000	0.12	2.23	5-6	a^9D^o-z^9F †
5696.22	A	8000	0.07	2.23	4-5	(3)
5643.24	A	6000	0.03	2.21	3-4	
5617.91	A	4000	0.00	2.20	2-3	
6114.07	A	2000	0.21	2.23	6-6	
5851.63	A	5000	0.12	2.23	5-5	
5632.25	A	2500	0.00	2.19	2-2	
5791.38	A	4000	0.07	2.20	4-3	
5701.35	A	2500	0.03	2.19	3-2	
4225.850//	A	3000	0.21	3.13	6-7	a^9D^o-y^9F †
4346.458	A	1500	0.12	2.96	5-5	(4)
4313.845	A	2000	0.03	2.89	3-3	
4308.340	A	1500	0.00	2.87	2-2	
4175.538	A	2000	0.21	3.17	6-6	a^9D^o-y^9D †
4053.642	A	2500	0.12	3.17	5-6	(5)
4078.700	A	3000	0.07	3.09	4-5	
4058.219	A	2500	0.03	3.07	3-4	
5015.04	A	1500	1.05	3.51	8-9	$a^{11}F^o$-$z^{11}G$
5103.45	A	2000	0.98	3.40	7-8	(6)
5155.845	A	1500	0.92	3.32	6-7	
5197.768	A	1200	0.88	3.25	5-8	
5219.40	A	2000	0.84	3.20	4-5	
5255.805	A	1500	0.81	3.16	3-4	
5251.180	A	2000	1.05	3.40	8-8	
5283.076	A	3000	0.98	3.32	7-7	
5301.87	A	4000	0.92	3.25	6-6	
5307.30	A	4000	0.88	3.20	5-5	
5321.777	A	4000	0.84	3.16	4-4	
5302.76	A	3000	0.81	3.14	3-3	
5321.496	A	2000	0.79	3.11	2-2	
5348.67	A	2000	0.79	3.09	2-1	
5350.38	A	4000	1.54	3.85	7-8	a^9F^o-z^9G †
5353.26	A	3000	1.46	3.77	6-7	(7)
5343.00	A	3000	1.39	3.70	5-6	
5333.30	A	2000	1.34	3.66	4-5	
Gd II I P ? Anal C List B Sept 1943						
3783.00	A	50	0.24	3.52	6½-5½	$a^{10}D^o$-$z^{10}P$
3952.00	A	300	0.14	3.27	5½-4½	(1)
3993.313	A	200	0.08	3.17	4½-3½	
3656.152	A	1500	0.14	3.52	5½-5½	
3871.54	A	80	0.08	3.27	4½-4½	
3934.824	A	300?	0.03	3.17	3½-3½	
3587.186	A	40	0.08	3.52	4½-5½	
3816.64	A	250	0.03	3.27	3½-4½	
3894.696	A	2000	0.00	3.17	2½-3½	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Gd II continued						
3422.466	A	10000	0.24	3.84	6½-7½	$a^{10}D^{o}-z^{10}F$ (2)
3545.797	A	3000	0.14	3.62	5½-8½	
3671.20	A	1500	0.08	3.44	4½-5½	
3716.36	A	1000	0.03	3.35	3½-4½	
3759.00	A	300	0.00	3.28	2½-3½	
3846.19	A	3000	0.24	3.62	6½-6½	
3743.47	A	2000	0.14	3.44	5½-5½	
3768.39	A	2000	0.08	3.35	4½-4½	
3796.37	A	2500	0.03	3.28	3½-3½	
3813.97	A	2000	0.00	3.24	2½-2½	
3855.56	A	200	0.24	3.44	6½-5½	
3844.579	A	500	0.14	3.35	5½-4½	
3850.69	A	800	0.08	3.28	4½-3½	
3852.45	A	1000	0.03	3.24	3½-2½	
3850.97	A	1200	0.00	3.20	2½-1½	
3968.261	A	60	0.14	3.25	5½-4½	$a^{10}D^{o}-2$ (3)
3887.157	A	40	0.08	3.25	4½-4½	
3831.80	A	100	0.03	3.25	3½-4½	
3367.093	A	100	0.14	3.81	5½-4½	$a^{10}D^{o}-z^{8}P$ (4)
3654.62	A	2000d	0.08	3.46	4½-3½	
3697.73	A	1000	0.03	3.37	3½-2½	
3308.517	A	80	0.08	3.81	4½-4½	
3605.665	A	100	0.03	3.46	3½-3½	
3662.26	A	800	0.00	3.37	2½-2½	
3268.335	A	400	0.03	3.81	3½-4½	
3571.933	A	300	0.00	3.46	2½-3½	
3732.45	A	100	0.08	3.38	4½-3½	$a^{10}D^{o}-3$ (5)
3524.198	A	1000	0.03	3.53	3½-2½	$a^{10}D^{o}-4$
3491.954	A	2000	0.00	3.53	2½-2½	(6)
3439.990	A	8000	0.24	3.83	6½-8½	$a^{10}D^{o}-z^{10}D$ (7)
3454.145	A	1500	0.14	3.72	5½-5½	
3518.632	A	30	0.08	3.59	4½-4½	
3449.616	A	800	0.03	3.61	3½-3½	
*3423.92 §	A	1500	0.00	3.60	2½-2½	
3549.365	A	3000	0.24	3.72	6½-5½	
3584.962	A	3000	0.14	3.59	5½-4½	
3494.404	A	3000	0.08	3.61	4½-3½	
3454.904	A	2000	0.03	3.60	3½-2½	
3350.474	A	10000	0.14	3.83	5½-8½	
3392.530	A	2000	0.08	3.72	4½-5½	
3473.819	A	2000	0.03	3.59	3½-4½	
3418.733	A	2000	0.00	3.61	2½-3½	
3462.997	A	200	0.14	3.71	5½-4½	$a^{10}D^{o}-z^{8}D$ † (8)
3365.591	A	400	0.03	3.70	3½-2½	
3345.985	A	2000	0.00	3.69	2½-1½	
3422.751	A	500	0.14	3.75	5½-5½	
3401.067	A	300	0.08	3.71	4½-4½	
3360.711	A	1000	0.03	3.70	3½-3½	
3336.180	A	2500	0.00	3.70	2½-2½	
3362.233	A	10000	0.08	3.75	4½-5½	
3358.820	A	8000	0.03	3.71	3½-4½	
3331.383	A	4000	0.00	3.70	2½-3½	
3196.532	A	150	0.08	3.94	4½-3½	$a^{10}D^{o}-z^{6}P$ † (9)
3052.511	A	50	0.00	4.04	2½-2½	
3133.094	A	150	0.00	3.94	2½-3½	
3161.369	A	2500	0.24	4.14	6½-6½	$a^{10}D^{o}-z^{8}F$ (10)
3145.00	A	2500	0.14	4.07	5½-5½	
3119.08	A	60	0.08	4.03	4½-4½	
3101.911	A	250d	0.03	4.01	3½-3½	
3098.899	A	300	0.00	3.98	2½-2½	
3233.740	A	1000?	0.24	4.07	6½-5½	
3171.09	A	125	0.14	4.03	5½-4½	
3138.094	A	80	0.08	4.01	4½-3½	
3124.250	A	150	0.03	3.98	3½-2½	
3119.336	A	25	0.00	3.98	2½-1½	
3085.621	A	60	0.14	4.14	5½-6½	
3093.846	A	25	0.08	4.07	4½-5½	
3083.350	A	200	0.03	4.03	3½-4½	
3076.925	A	2000	0.00	4.01	2½-3½	
*3160.69 §	A	200	0.08	3.98	4½-3½	$a^{10}D^{o}-y\ P$ † (11)
3135.034	A	200	0.03	3.97	3½-2½	
3156.532	A	2000	0.08	3.99	4½-4½	
3123.989	A	1000	0.03	3.98	3½-3½	
3119.941	A	800	0.03	3.99	3½-4½	
3098.644	A	800	0.00	3.98	2½-3½	
3100.504	A	10000	0.24	4.22	6½-5½	$a^{10}D^{o}-y^{10}P$ (12)
3081.993	A	8000	0.14	4.15	5½-4½	
3088.643	A	4000	0.08	4.10	4½-3½	
3027.602	A	8000	0.14	4.22	5½-5½	
3032.845	A	10000	0.08	4.15	4½-4½	
3034.051	A	8000	0.03	4.10	3½-3½	
2980.154	A	8000	0.08	4.22	4½-5½	
2999.045	A	8000	0.03	4.15	3½-4½	
3010.129	A	8000	0.00	4.10	2½-3½	
4508.931	A	80	0.42	3.16	3½-4½	$a^{8}D^{o}-1$ † (13)
4325.148	A	100	0.80	3.52	5½-5½	$a^{8}D^{o}-z^{10}P$ † (14)
4446.487	A	250	0.49	3.27	4½-4½	
4494.853	A	25	0.42	3.17	3½-3½	
4341.282	A	600	0.42	3.27	3½-4½	
4428.151	A	80	0.38	3.17	2½-3½	

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Gd II continued						
4078.444	A	1200	0.60	3.62	5½-6½	$a^{8}D^{o}-z^{10}F$ (15)
4184.252	A	2000	0.49	3.44	4½-5½	
4212.001	A	800	0.42	3.35	3½-4½	
4251.733	A	2000	0.38	3.28	2½-3½	
4280.490	A	1500	0.35	3.24	1½-2½	
4342.179	A	1500	0.80	3.44	5½-5½	
4310.981	A	200	0.49	3.35	4½-4½	
4322.195	A	125	0.38	3.24	2½-2½	
*4327.125§	A	1500	0.35	3.20	1½-1½	
4478.795	A	250	0.60	3.35	5½-4½	
4419.032	A	800	0.49	3.28	4½-3½	
4387.674	A	300	0.42	3.24	3½-2½	
4369.771	A	500	0.38	3.20	2½-1½	
4360.917	A	250	0.42	3.25	3½-4½	$a^{8}D^{o}-2$ (16)
3843.80	A	25	0.60	3.81	5½-4½	$a^{8}D^{o}-z^{8}P$ † (17)
4162.732	A	500	0.49	3.46	4½-3½	
4188.099	A	60	0.42	3.37	3½-2½	
3719.53	A	300	0.49	3.81	4½-4½	
4070.390	A	200	0.42	3.46	3½-3½	
3645.62	A	300	0.42	3.81	3½-4½	
4013.953	A	60	0.38	3.46	2½-3½	
4187.159	A	40	0.42	3.38	3½-3½	$a^{8}D^{o}-3$ † (18)
3822.17	A	80	0.60	3.83	5½-6½	$a^{8}D^{o}-z^{10}D$ † (19)
3826.05	A	200	0.49	3.72	4½-5½	
3902.398	A	1000	0.42	3.59	3½-4½	
3957.672	A	1000	0.60	3.72	5½-5½	
3987.214	A	600	0.49	3.59	4½-4½	
3872.82	A	60	0.42	3.61	3½-3½	
*4130.372	A	3000	0.60	3.59	5½-4½	
3916.508	A	3000	0.60	3.75	5½-5½	$a^{8}D^{o}-z^{8}D$ † (20)
3836.91	A	300	0.49	3.71	4½-4½	
3760.92	A	100	0.42	3.70	3½-3½	
3699.73	A	800	0.35	3.69	1½-1½	
3969.293	A	300	0.60	3.71	5½-4½	
3839.64	A	300	0.49	3.70	4½-3½	
3767.04	A	500	0.42	3.70	3½-2½	
3730.84	A	1000	0.38	3.69	2½-1½	
3787.56	A	400	0.49	3.75	4½-5½	
3758.31	A	200	0.42	3.71	3½-4½	
3712.70	A	2000	0.38	3.70	2½-3½	
3687.74	A	800	0.35	3.70	1½-2½	
3578.596	A	30	0.49	3.94	4½-3½	$a^{8}D^{o}-z^{6}P$ † (21)
3409.297	A	500	0.42	4.04	3½-2½	
3321.348	A	30	0.38	4.10	2½-1½	
3510.133	A	30	0.42	3.94	3½-3½	
*3369.818	A	400	0.38	4.04	2½-2½	
3296.688	A	30	0.35	4.10	1½-1½	
3488.083	A	200	0.38	3.94	2½-3½	
3481.275	A	5000	0.50	4.14	5½-6½	$a^{8}D^{o}-z^{8}F$ † (22)
3450.376	A	4000	0.49	4.07	4½-5½	
3416.948	A	2500	0.42	4.03	3½-4½	
3399.406	A	500	0.38	4.01	2½-3½	
3399.991	A	1200	0.35	3.98	1½-2½	
3557.053	A	1000	0.60	4.07	5½-5½	
3481.797	A	3000	0.49	4.03	4½-4½	
3439.784	A	1500	0.42	4.01	3½-3½	
3434.592	A	1200	0.35	3.96	1½-1½	
3590.468	A	100	0.60	4.03	5½-4½	
3505.512	A	2000	0.49	4.01	4½-3½	
3467.267	A	3500	0.42	3.98	3½-2½	
3451.233	A	2000	0.38	3.96	2½-1½	
3432.994	A	1500	0.35	3.95	1½- ½	
*3640.18 §	A	50	0.60	3.99	5½-4½	$a^{8}D^{o}-y^{8}P$ † (23)
3480.547	A	60	0.42	3.97	3½-2½	
3528.545	A	300	0.49	3.99	4½-4½	
3466.952	A	600	0.42	3.98	3½-3½	
3439.208	A	3000	0.38	3.97	2½-2½	
*3461.952§	A	300	0.42	3.99	3½-4½	
3425.930	A	600	0.38	3.98	2½-3½	
3412.753	A	80	0.35	3.97	1½-2½	
3407.61	A	1500?	0.60	4.22	5½-5½	$a^{8}D^{o}-y^{10}P$ (24)
3374.688	A	300	0.49	4.15	4½-4½	
3356.513	A	80	0.42	4.10	3½-3½	
3419.069	A	50	0.49	4.10	4½-3½	
3309.582	A	60	0.49	4.22	4½-5½	
3313.731	A	600	0.42	4.15	3½-4½	
3318.055	A	100	0.38	4.10	2½-3½	
3161.638	A	40	0.60	4.50	5½-5½	$a^{8}D^{o}-y^{8}D$ † (25)
3003.583	A	150	0.42	4.53	3½-3½	
2960.926	A	500	0.36	4.55	2½-2½	
3143.131	A	400	0.80	4.52	5½-4½	
3053.570	A	600	0.49	4.53	4½-3½	
2991.520	A	150	0.42	4.55	3½-2½	
3077.077	A	800	0.49	4.50	4½-5½	
3009.366	A	60	0.42	4.52	3½-4½	
2972.742	A	150	0.38	4.53	2½-3½	
3028.981	A	200	0.60	4.67	5½-4½	$a^{8}D^{o}-7$ † (26)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Gd II continued						
3009.650	A	150	0.60	4.70	5½-4½	$a^{8}D^{o}-8$ † (27)
2969.267	A	50	0.60	4.75	5½-5½	$a^{8}D^{o}-9$ (28)
2965.428	A	400	0.60	4.76	5½-5½	$a^{8}D^{o}-z^{8}F$ †
3012.190	A	600	0.60	4.69	5½-4½	(29)
4510.380	A	30d?	0.43	3.16	3½-4½	$a^{8}S^{o}-1$ (30)
4344.487	A	40	0.43	3.27	3½-4½	$a^{8}S^{o}-z^{10}P$
4498.276	A	300	0.43	3.17	3½-3½	(31)
4215.023	A	600	0.43	3.35	3½-4½	$a^{8}S^{o}-z^{10}F$
4390.953	A	300	0.43	3.24	3½-2½	(32)
4364.140	A	25	0.43	3.25	3½-4½	$a^{8}S^{o}-2$ (33)
4073.195	A	400	0.43	3.46	3½-3½	$a^{8}S^{o}-z^{8}P$ †
4191.067	A	800	0.43	3.37	3½-2½	(34)
*4170.108§	A	150	0.43	3.38	3½-3½	$a^{8}S^{o}-3$ (35)
3881.84	A	50	0.43	3.60	3½-2½	$a^{8}S^{o}-z^{10}D$ † (36)
3780.71	A	200	0.43	3.71	3½-4½	$a^{8}S^{o}-z^{8}D$
3763.33	A	60	0.43	3.70	3½-3½	(37)
3769.45	A	100	0.43	3.70	3½-2½	
3512.219	A	800	0.43	3.94	3½-3½	$a^{8}S^{o}-z^{6}P$ † (38)
3441.790	A	400	0.43	4.01	3½-3½	$a^{8}S^{o}-z^{8}F$ †
3469.307	A	100	0.43	3.98	3½-2½	(39)
3463.984	A	5000	0.43	3.99	3½-4½	$a^{8}S^{o}-y^{8}P$
3468.989	A	3000	0.43	3.98	3½-3½	(40)
3482.602	A	800	0.43	3.97	3½-2½	
3315.590	A	400	0.43	4.15	3½-4½	$a^{8}S^{o}-y^{10}P$
3358.434	A	300	0.43	4.10	3½-3½	(41)
3010.899	A	250	0.43	4.52	3½-4½	$a^{8}S^{o}-y^{8}D$
2993.038	A	500	0.43	4.55	3½-2½	(42)
4734.427	A	100	0.66	3.27	5½-4½	$a^{10}F^{o}-z^{10}P$ †
4802.575	A	80	0.60	3.17	4½-3½	(43)
4316.052	A	600	0.66	3.52	5½-5½	
4627.66	A	40	0.60	3.27	4½-4½	
4719.040	A	60	0.55	3.17	3½-3½	
4227.140	A	200	0.60	3.52	4½-5½	
4073.759	A	1500	0.82	3.84	7½-7½	$a^{10}F^{o}-z^{10}F$ †
*4262.092§	A	2500	0.73	3.52	6½-6½	(44)
4438.266	A	150	0.66	3.44	5½-5½	
4481.058	A	300	0.60	3.35	4½-4½	
4521.296	A	100	0.55	3.28	3½-3½	
4558.080	A	250	0.50	3.20	1½-1½	
4394.719	A	25	0.82	3.62	7½-6½	
4550.954	A	150	0.73	3.44	6½-5½	
4581.086	A	200	0.66	3.35	5½-4½	
*4597.91 §	A	500	0.60	3.28	4½-3½	
4601.05	A	500	0.55	3.24	3½-2½	
4596.978	A	400	0.52	3.20	2½-1½	
3959.523	A	500?	0.73	3.84	6½-7½	
*4163.092§	A	250	0.86	3.62	5½-6½	
4344.300	A	100	0.60	3.44	4½-5½	
4408.248	A	400	0.55	3.35	3½-4½	
*4466.547§	A	500	0.52	3.28	2½-3½	
4506.333	A	200	0.50	3.24	1½-2½	
4757.791	A	80	0.66	3.25	5½-4½	$a^{10}F^{o}-2$ † (45)
4321.110	A	200	0.60	3.46	4½-3½	$a^{10}F^{o}-z^{8}P$ †
4382.061	A	60	0.55	3.37	3½-2½	(46)
4253.366	A	800	0.55	3.46	3½-3½	
4330.606	A	600	0.52	3.37	2½-2½	
3791.72	A	30	0.55	3.81	3½-4½	
4204.857	A	300	0.52	3.46	2½-3½	
4296.076	A	1000	0.50	3.37	1½-2½	
*4359.152	A	40	0.55	3.38	3½-3½	$a^{10}F^{o}-3$ †
4308.233	A	40	0.52	3.38	2½-3½	(47)
4140.450	A	100	0.55	3.53	3½-2½	$a^{10}F^{o}-4$
4094.478	A	300	0.52	3.53	2½-2½	(48)
4063.59	A	200	0.50	3.53	1½-2½	
4098.606	A	3000	0.82	3.83	7½-6½	$a^{10}F^{o}-z^{10}D$ †
*4130.372	A	3000	0.73	3.72	6½-5½	(49)
4217.195	A	500	0.66	3.59	5½-4½	
4098.900	A	400	0.60	3.61	4½-3½	
4045.148	A	100	0.55	3.60	3½-2½	
3983.008	A	80	0.73	3.83	6½-6½	
4037.332	A	1500	0.66	3.72	5½-5½	
4132.275	A	2000	0.60	3.59	4½-4½	
4037.897	A	1200	0.55	3.61	3½-3½	
4001.257	A	600	0.52	3.60	2½-2½	
3959.436	A	300?	0.60	3.72	4½-5½	
4070.288	A	600	0.55	3.59	3½-4½	
3994.165	A	800	0.52	3.61	2½-3½	
3971.754	A	300	0.50	3.60	1½-2½	

Gd II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4085.564	A	2000	0.73	3.75	6½-5½	$a^{10}F^{o}-z^{8}D$ †
4049.439	A	1200	0.66	3.71	5½-4½	(50)
3973.981	A	500	0.60	3.70	4½-3½	
3923.246	A	300	0.55	3.70	3½-2½	
3895.230	A	200	0.52	3.69	2½-1½	
3971.062	A	100	0.60	3.71	4½-4½	
m3916.61	P	Gd+	0.55	3.70	3½-3½	
3881.94	A	30	0.52	3.70	2½-2½	
3867.26	A	60	0.50	3.69	1½-1½	
3918.236	A	150	0.80	3.75	4½-5½	
3875.46	A	100	0.52	3.70	2½-3½	
3854.177	A	50	0.50	3.70	1½-2½	
3709.13	A	50	0.82	4.14	7½-6½	$a^{10}F^{o}-z^{8}F$ †
3576.772	A	25	0.50	3.95	1½- ½	(51)
•3614.21 §	A	100	0.73	4.14	6½-8½	
3591.912	A	30	0.60	4.03	4½-4½	
3569.566	A	40	0.55	4.01	3½-3½	
3567.654	A	40	0.50	3.96	1½-1½	
3543.768	A	500	0.66	4.14	5½-6½	
3558.468	A	250	0.60	4.07	4½-5½	
3544.985	A	60	0.55	4.03	3½-4½	
3593.445	A	60	0.55	3.99	3½-4½	$a^{10}F^{o}-y^{8}P$ †
3564.046	A	60	0.52	3.98	2½-3½	(52)
3554.802	A	30	0.50	3.97	1½-2½	
3466.498	A	150	0.66	4.22	5½-5½	$a^{10}F^{o}-y^{10}P$ †
3193.174	A	200	0.66	4.52	5½-4½	$a^{10}F^{o}-y^{8}D$ †
3137.940	A	80	0.60	4.53	4½-3½	(53)
3089.204	A	30	0.55	4.55	3½-2½	(54)
3212.274	A	50	0.66	4.50	5½-5½	
3162.764	A	25	0.60	4.50	4½-5½	
3108.230	A	30	0.55	4.52	3½-4½	
3040.34	A	150	0.60	4.66	4½-3½	$a^{10}F^{o}-6$
3075.422	A	30	0.66	4.67	5½-4½	(55) $a^{10}F^{o}-7$ †
3058.119	A	80	0.66	4.69	5½-4½	(56) $a^{10}F^{o}-z^{6}F$ †
2987.074	A	80	0.60	4.73	4½-3½	(57)
5860.73	A	1000	1.06	3.16	5½-4½	$b^{8}D^{o}-1$ †
5010.821	A	400	1.06	3.52	5½-5½	(58) $b^{8}D^{o}-z^{10}P$ †
6049.50	A	80	1.13	3.17	3½-3½	(59)
5583.68	A	800	1.06	3.27	5½-4½	
5956.48	A	200	1.10	3.17	4½-3½	
5096.063	A	200	1.10	3.52	4½-5½	
4805.817	A	100	1.06	3.62	5½-6½	$b^{8}D^{o}-z^{10}F$ †
5267.322	A	40	1.10	3.44	4½-5½	(60)
5176.285	A	800	1.06	3.44	5½-5½	
•5469.72 §	A	800	1.10	3.35	4½-4½	
5728.32	A	60	1.13	3.28	3½-3½	
5371.621	A	40	1.06	3.35	5½-4½	
5644.84	A	300	1.10	3.28	4½-3½	
5856.96	A	150	1.13	3.24	3½-2½	
6011.12	A	30	1.15	3.20	2½-1½	
5616.21	A	300	1.06	3.25	5½-4½	$b^{8}D^{o}-2$
4483.328	A	300	1.06	3.81	5½-4½	(61) $b^{8}D^{o}-z^{8}P$ †
4551.455	A	30	1.10	3.81	4½-4½	(62)
5304.923	A	25	1.13	3.46	3½-3½	
5357.790	A	50	1.15	3.46	2½-3½	
5394.321	A	125	1.10	3.38	4½-3½	$b^{8}D^{o}-3$ †
5470.53	A	50	1.13	3.38	3½-3½	(63)
4453.931	A	60	1.06	3.83	5½-6½	$b^{8}D^{o}-z^{10}D$
4711.975	A	80	1.10	3.72	4½-5½	(64)
5023.133	A	200	1.13	3.59	3½-4½	
•5020.368§	A	80	1.15	3.61	2½-3½	
5062.862	A	150	1.17	3.60	1½-2½	
•4639.001	A	200	1.06	3.72	5½-5½	
•4958.788§	A	800	1.10	3.59	4½-4½	
4973.896	A	30	1.13	3.61	3½-3½	
5031.562	A	80	1.15	3.60	2½-2½	
4878.049	A	30	1.06	3.59	5½-4½	
4910.838	A	50	1.10	3.61	4½-3½	
4984.905	A	60	1.13	3.80	3½-2½	
4582.53	A	400	1.06	3.75	5½-5½	$b^{8}D^{o}-z^{8}D$ †
4728.468	A	300	1.10	3.71	4½-4½	(65)
4791.150	A	40	1.13	3.70	3½-3½	
4894.30	A	600	1.17	3.69	1½-1½	
4654.986	A	100	1.06	3.71	5½-4½	
4732.60	A	800	1.10	3.70	4½-3½	
4801.05	A	500	1.13	3.70	3½-2½	
4865.02	A	400	1.15	3.89	2½-1½	
4786.908	A	150	1.13	3.71	3½-4½	
4834.232	A	300	1.15	3.70	2½-3½	
4873.339	A	150	1.17	3.70	1½-2½	

Gd II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4427.606	A	60	1.15	3.94	2½-3½	$b^{8}D^{o}-z^{6}P$ †
3997.764	A	300	1.06	4.14	5½-6½	(66) $b^{8}D^{o}-z^{8}F$ †
4154.862	A	250	1.10	4.07	4½-5½	(67)
4246.568	A	150	1.13	4.03	3½-4½	
•4316.266	A	150	1.15	4.01	2½-3½	
4383.119	A	150	1.17	3.98	1½-2½	
4359.636	A	30	1.15	3.98	2½-2½	
4424.102	A	40	1.17	3.96	1½-1½	
4400.18	A	25	1.15	3.96	2½-1½	
4438.13	A	30	1.17	3.95	1½- ½	
4268.731	A	150	1.10	3.99	4½-4½	$b^{8}D^{o}-y^{8}P$ †
4324.064	A	150	1.13	3.98	3½-3½	(68)
4380.642	A	100	1.15	3.97	2½-2½	
•4316.266	A	150	1.13	3.99	3½-4½	
•4359.152	A	40	1.15	3.98	2½-3½	
3581.91	A	200	1.06	4.50	5½-5½	$b^{8}D^{o}-y^{8}D$
3600.963	A	200	1.10	4.52	4½-4½	(69)
3626.32	A	40	1.13	4.53	3½-3½	
3629.51	A	80	1.17	4.57	1½-1½	
3558.189	A	400	1.06	4.52	5½-4½	
•3592.709	A	1500d	1.10	4.53	4½-3½	
3608.753	A	200	1.13	4.55	3½-2½	
3613.392	A	150	1.15	4.57	2½-1½	
3625.26	A	60	1.10	4.50	4½-5½	
3634.757	A	100	1.13	4.52	3½-4½	
3650.95	A	100	1.15	4.53	2½-3½	
3649.44	A	80	1.17	4.55	1½-2½	
3412.583	A	60	1.06	4.67	5½-4½	$b^{8}D^{o}-7$ †
•3451.914§	A	25	1.10	4.67	4½-4½	(70)
3388.065	A	40	1.06	4.70	5½-4½	$b^{8}D^{o}-8$ †
3336.984	A	200	1.06	4.75	5½-5½	(71) $b^{8}D^{o}-9$
3374.584	A	50	1.10	4.75	4½-5½	(72)
3332.133	A	1000	1.06	4.76	5½-5½	$b^{8}D^{o}-z^{6}F$ †
3426.342	A	50	1.13	4.73	3½-3½	(73)
3412.020	A	200	1.15	4.77	2½-2½	
3403.081	A	150	1.17	4.79	1½-1½	
3391.294	A	150	1.06	4.69	5½-4½	
3390.498	A	30	1.13	4.77	3½-2½	
3388.912	A	100	1.15	4.79	2½-1½	
3390.878	A	200	1.17	4.81	1½- ½	
•3369.618	A	400	1.10	4.76	4½-5½	
3460.776	A	30	1.13	4.69	3½-4½	
3300.976	A	60	1.10	4.84	4½-3½	$b^{8}D^{o}-x^{8}P$ †
3292.210	A	800	1.10	4.85	4½-4½	(74)
3329.345	A	400	1.13	4.84	3½-3½	
3366.532	A	50	1.15	4.83	2½-2½	
3320.438	A	300	1.13	4.85	3½-4½	
3350.097	A	400	1.15	4.84	2½-3½	
3380.515	A	300	1.17	4.82	1½-2½	
3226.318	A	1000	1.06	4.88	5½-4½	$b^{8}D^{o}-z^{6}D$ †
3236.106	A	150	1.10	4.91	4½-3½	(75)
3242.834	A	50	1.13	4.93	3½-2½	
3249.747	A	40	1.15	4.95	2½-1½	
•3262.515	A	80	1.10	4.88	4½-4½	
3283.373	A	125	1.13	4.91	3½-3½	
•3262.515	A	80	1.15	4.93	2½-2½	
3289.150	A	100	1.13	4.88	3½-4½	
3102.551	A	1000	1.06	5.03	5½-6½	$b^{8}D^{o}-y^{8}F$ †
3133.852	A	1000	1.10	5.03	4½-5½	(78)
3145.516	A	800	1.13	5.05	3½-4½	
3146.878	A	250	1.15	5.07	2½-3½	
3142.900	A	300	1.17	5.09	1½-2½	
3101.407	A	50	1.08	5.03	5½-5½	
3120.181	A	125	1.10	5.05	4½-4½	
3128.560	A	200	1.13	5.07	3½-3½	
3130.812	A	200	1.15	5.09	2½-2½	
3129.955	A	100	1.17	5.11	1½-1½	
3117.974	A	40	1.15	5.11	2½-1½	
3121.760	A	80	1.17	5.12	1½- ½	
2975.110	A	30	1.13	5.28	3½-2½	$b^{8}D^{o}-y^{6}P$
2972.17	A	100	1.15	5.30	2½-1½	(77)
2985.521	A	100	1.13	5.26	3½-3½	
2983.060	A	60	1.17	5.30	1½-1½	
3002.197	A	50	1.15	5.26	2½-3½	
3002.710	A	60	1.17	5.28	1½-2½	
5588.16	A	100	1.25	3.48	4½-3½	$a^{8}D^{o}-z^{8}P$
5871.81	A	30	1.28	3.38	3½-3½	(78) $a^{6}D^{o}-3$ †
5303.43	A	30	1.28	3.61	3½-3½	(79) $a^{6}D^{o}-z^{10}D$ †
5220.297	A	300	1.31	3.61	2½-3½	(80)
5019.361	A	100	1.25	3.70	4½-3½	$a^{8}D^{o}-z^{8}D$ †
5107.408	A	80	1.28	3.70	3½-2½	(81)

Gd II continued

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
4582.38	A	300	1.25	3.94	4½-3½	$a^{6}D^{o}-z^{6}P$ †
4471.29	A	200	1.28	4.04	3½-2½	(82)
4433.635	A	60	1.31	4.10	2½-1½	
4646.326	A	40	1.28	3.94	3½-3½	
4520.070	A	150	1.31	4.04	2½-2½	
4467.227	A	80	1.33	4.10	1½-1½	
4554.989	A	50	1.33	4.04	1½-2½	
4488.401	A	80	1.35	4.10	½-1½	
4374.243	A	30	1.25	4.07	4½-5½	$a^{6}D^{o}-z^{8}F$ †
4463.247	A	80	1.25	4.01	4½-3½	(83)
4731.273	A	50	1.33	3.95	1½- ½	
4570.977	A	40	1.28	3.98	3½-3½	$a^{6}D^{o}-y^{8}P$ †
4509.082	A	50	1.25	3.98	4½-3½	(84)
3791.17	A	300	1.25	4.50	4½-5½	$a^{6}D^{o}-y^{8}D$ †
3807.65	A	25	1.28	4.52	3½-4½	(85)
3764.60	A	50	1.25	4.52	4½-4½	
3755.56	A	40	1.25	4.53	4½-3½	
3641.39	A	125	1.28	4.87	3½-4½	$a^{6}D^{o}-7$ †
3613.490	A	80	1.28	4.70	3½-4½	(88) $a^{6}D^{o}-8$
3517.890	A	80	1.25	4.75	4½-5½	(87) $a^{6}D^{o}-9$
3512.496	A	800	1.25	4.78	4½-5½	(88) $a^{6}D^{o}-z^{6}F$ †
3617.164	A	200	1.28	4.69	3½-4½	(89)
3610.76	A	200	1.31	4.73	2½-3½	
•3592.709	A	1500d	1.33	4.77	1½-2½	
3580.618	A	40	1.35	4.79	½-1½	
3579.549	A	25	1.28	4.73	3½-3½	
•3587.118	A	30	1.33	4.79	1½-1½	
			1.35	4.81	½- ½	
3553.716	A	40	1.33	4.81	1½- ½	
3428.487	A	500	1.25	4.85	4½-4½	$a^{6}D^{o}-x^{8}P$ †
3464.132	A	100?	1.28	4.85	3½-4½	(90)
3503.208	A	60	1.31	4.84	2½-3½	
3395.120	A	1000	1.25	4.88	4½-4½	$a^{6}D^{o}-z^{8}D$
•3402.072	A	1000	1.28	4.91	3½-3½	(91)
3407.56	A	800?	1.31	4.93	2½-2½	
3413.273	A	400	1.33	4.95	1½-1½	
3417.330	A	150	1.35	4.98	½- ½	
3367.661	A	150	1.25	4.91	4½-3½	
3379.756	A	400	1.28	4.93	3½-2½	
3393.630	A	400	1.31	4.95	2½-1½	
3405.038	A	150	1.33	4.96	1½- ½	
3430.238	A	40	1.31	4.91	2½-3½	
3427.362	A	80	1.33	4.93	1½-2½	
3425.624	A	50	1.35	4.95	½-1½	
3257.072	A	100	1.25	5.03	4½-5½	$a^{6}D^{o}-y^{8}F$ †
3274.183	A	300	1.28	5.05	3½-4½	(92)
3281.607	A	200	1.31	5.07	2½-3½	
3282.305	A	400?	1.33	5.09	1½-2½	
3279.529	A	200	1.35	5.11	½-1½	
3242.304	A	150	1.25	5.05	4½-4½	
3255.819	A	150	1.28	5.07	3½-3½	
3264.137	A	80	1.31	5.09	2½-2½	
3270.515	A	100	1.35	5.12	½- ½	
3224.297	A	60	1.25	5.07	4½-3½	
3238.621	A	300	1.28	5.09	3½-2½	
3250.187	A	300	1.31	5.11	2½-1½	
3259.250	A	250	1.33	5.12	1½- ½	
3072.565	A	1000	1.25	5.26	4½-3½	$a^{6}D^{o}-y^{6}P$ †
3089.954	A	400	1.28	5.28	3½-2½	(93)
3092.058	A	150	1.31	5.30	2½-1½	
3101.185	A	125	1.28	5.26	3½-3½	
3113.172	A	250	1.31	5.28	2½-2½	
3108.360	A	150	1.33	5.30	1½-1½	
3129.696	A	80	1.33	5.28	1½-2½	
3118.600	A	150	1.35	5.30	½-1½	
5877.28	A	1000	1.42	3.52	5½-5½	$a^{10}P^{o}-z^{10}P$
6634.36	A	1500	1.31	3.17	3½-3½	(94)
6681.23	A	1000	1.42	3.27	5½-4½	
6848.80	A	1200	1.37	3.17	4½-3½	
5733.86	A	4000	1.37	3.52	4½-5½	
8305.15	A	1500	1.31	3.27	3½-4½	
5597.21	A	200	1.42	3.62	5½-8½	$a^{10}P^{o}-z^{10}F$ †
5951.60	A	80	1.37	3.44	4½-5½	(95)
6108.19	A	100	1.42	3.44	5½-5½	
6727.83	A	125	1.42	3.25	5½-4½	$a^{10}P^{o}-2$
8346.65	A	400	1.31	3.25	3½-4½	(98)
5164.542	A	150	1.42	3.81	5½-4½	$a^{10}P^{o}-z^{8}P$ †
5987.11	A	150	1.31	3.37	3½-2½	(97)
5749.41	A	500	1.31	3.48	3½-3½	
5545.01	A	250	1.31	3.53	3½-2½	$a^{10}P^{o}-4$ (98)

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
Gd II continued						
5125.56	A	400	1.42	3.83	5½-6½	$a^{10}P^{o}-z^{10}D$ †
*5252.14 §	A	500	1.37	3.72	4½-5½	(99)
5419.876	A	150	1.31	3.59	3½-4½	
5372.216	A	300	1.42	3.72	5½-5½	
5560.69	A	600	1.37	3.59	4½-4½	
5500.43	A	600	1.37	3.61	4½-3½	
5375.393	A	100	1.31	3.60	3½-2½	
5393.659	A	100	1.42	3.71	5½-4½	$a^{10}P^{o}-z^{8}D$ †
5179.919	A	125	1.37	3.75	4½-5½	(100)
*4666.448§	A	40	1.37	4.01	4½-3½	$a^{10}P^{o}-z^{8}F$ †
						(101)
4803.536	A	80	1.42	3.99	5½-4½	$a^{10}P^{o}-y^{8}P$ †
4716.576	A	30	1.37	3.98	4½-3½	(102)
*4639.001	A	200	1.31	3.97	3½-2½	
4406.67	A	400	1.42	4.22	5½-5½	$a^{10}P^{o}-y^{10}P$ †
4421.24	A	200	1.31	4.10	3½-3½	(103)
*4522.82 §	A	250	1.42	4.15	5½-4½	
4514.505	A	200	1.37	4.10	4½-3½	
4325.566	A	200	1.37	4.22	4½-5½	
4347.310	A	400	1.31	4.15	3½-4½	
4003.850	A	30	1.42	4.50	5½-5½	$a^{10}P^{o}-y^{8}D$ †
						(104)
3748.88	A	50	1.37	4.68	4½-3½	$a^{10}P^{o}-6$
						(105)
3489.281	A	40	1.31	4.85	3½-4½	$a^{10}P^{o}-x^{8}P$
						(106)
3414.207	A	60	1.42	5.03	5½-6½	$a^{10}P^{o}-y^{8}F$ †
3363.974	A	30	1.37	5.03	4½-5½	(107)
6610.04	A	80	1.85	3.52	5½-5½	$a^{8}F^{o}-z^{10}P$ †
						(108)
8480.11	A	200	1.72	3.82	6½-8½	$a^{8}F^{o}-z^{10}F$ †
7172.26	A	600	1.72	3.44	6½-5½	(109)
7252.70	A	400	1.65	3.35	5½-4½	
7394.90	A	150	1.61	3.28	4½-3½	
7505.35	A	80	1.59	3.24	3½-2½	
5721.99	A	200	1.65	3.81	5½-4½	$a^{8}F^{o}-z^{8}P$ †
8704.18	A	60	1.81	3.46	4½-3½	(110)
6622.28	A	50	1.59	3.46	3½-3½	
6260.31	A	40	1.61	3.59	4½-4½	$a^{8}F^{o}-z^{10}D$
*6180.42 §	A	300	1.72	3.72	6½-5½	(111)
6380.95	A	600	1.65	3.59	5½-4½	
6080.65	A	300	1.72	3.75	6½-5½	$a^{8}F^{o}-z^{8}D$
6004.57	A	500	1.65	3.71	5½-4½	(112)
5904.07	A	800	1.61	3.70	4½-3½	
5855.24	A	300	1.59	3.70	3½-2½	
5845.71	A	80	1.58	3.69	2½-1½	
5884.59	A	30	1.65	3.75	5½-5½	
5897.62	A	200	1.61	3.71	4½-4½	
5840.47	A	200	1.59	3.70	3½-3½	
5815.85	A	250	1.58	3.70	2½-2½	
5820.99	A	200	1.57	3.89	1½-1½	
5801.30	A	40	1.58	3.70	2½-3½	
5807.05	A	100	1.58	3.69	½-1½	
*4881.925	A	200	1.57	4.10	1½-1½?	$a^{8}F^{o}-z^{6}P$ †
						(113)
5092.251	A	600	1.72	4.14	6½-8½	$a^{8}F^{o}-z^{8}F$ †
5108.91	A	500	1.65	4.07	5½-5½	(114)
5098.38	A	400	1.61	4.03	4½-4½	
5100.937	A	100	1.59	4.01	3½-3½	
5175.839	A	50	1.56	3.95	½- ½	
5256.030	A	50	1.72	4.07	8½-5½	
5178.104	A	100	1.65	4.03	5½-4½	
5187.237	A	250	1.58	3.96	2½-1½	
5188.915	A	200	1.57	3.95	1½- ½	
4954.025	A	50	1.65	4.14	5½-6½	
5031.290	A	250	1.61	4.07	4½-5½	
5050.878	A	300	1.59	4.03	3½-4½	
5071.023	A	200	1.58	4.01	2½-3½	
5111.930	A	30	1.57	3.98	1½-2½	
5156.76	A	200	1.56	3.96	½-1½	
5210.488	A	200	1.81	3.98	4½-3½	$a^{8}F^{o}-y^{8}P$ †
5191.081	A	250	1.59	3.97	3½-2½	(115)
5199.211	A	60	1.61	3.99	4½-4½	
5160.898	A	100	1.59	3.98	3½-3½	
5180.105	A	40	1.58	3.97	2½-2½	
5149.841	A	50	1.59	3.99	3½-4½	
5130.28	A	200	1.58	3.98	2½-3½	
5140.839	A	400	1.57	3.97	1½-2½	
4936.155	A	50	1.72	4.22	6½-5½	$a^{8}F^{o}-y^{10}P$ †
4808.165	A	40	1.65	4.22	5½-5½	(118)
4892.11	A	30	1.58	4.10	2½-3½	
4438.225	A	200	1.72	4.50	6½-5½	$a^{8}F^{o}-y^{8}D$ †
4298.30	A	400	1.85	4.52	5½-4½	(117)
4239.803	A	200	1.81	4.53	4½-3½	
4173.558	A	100	1.59	4.55	3½-2½	
4127.721	A	25	1.58	4.57	2½-1½	

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
Gd II continued						
4241.276	A	80	1.61	4.52	4½-4½	$a^{8}F^{o}-y^{8}D$ †
4197.069	A	150	1.59	4.53	3½-3½	(117)
4153.510	A	125	1.58	4.55	2½-2½	cont
4115.376	A	80	1.57	4.57	1½-1½	
4141.017	A	25	1.57	4.55	1½-2½	
4108.401	A	50	1.56	4.57	½-1½	
4059.370	A	80	1.72	4.76	6½-5½	$a^{8}F^{o}-z^{6}F$ †
						(118)
3722.068	A	100	1.72	5.03	6½-5½	$a^{8}F^{o}-y^{8}F$ †
						(119)
7908.06	A	40d?	2.19	3.75	5½-5½	$c^{8}D^{o}-z^{8}D$ †
						(120)
6314.22	A	50	2.19	4.14	5½-6½	$c^{8}D^{o}-z^{8}F$ †
7197.08	A	80	2.27	3.98	1½-2½	(121)
6568.00	A	100	2.19	4.07	5½-5½	
6996.76	A	1500	2.22	3.98	2½-2½	
6857.13	A	600	2.19	3.99	5½-4½	$c^{8}D^{o}-y^{8}P$
6920.62	A	250	2.20	3.98	4½-3½	(122)
7000.75	A	200	2.21	3.97	3½-2½	
6900.73	A	200	2.20	3.99	4½-4½	
6945.98	A	150	2.21	3.98	3½-3½	
7051.00	A	200	2.22	3.97	2½-2½	
6299.07	A	40	2.19	4.15	5½-4½	$c^{8}D^{o}-y^{10}P$
6494.11	A	80	2.20	4.10	4½-3½	(123)
4968.575	A	50	2.19	4.67	5½-4½	$c^{8}D^{o}-7$
						(124)
4916.78	A	25	2.19	4.70	5½-4½	$c^{8}D^{o}-8$
						(125)
4799.859	A	60	2.19	4.76	5½-5½	$c^{8}D^{o}-z^{6}F$ †
4888.542	A	40	2.21	4.73	3½-3½	(126)
4839.816	A	40	2.22	4.77	2½-2½	
4923.578	A	60	2.19	4.69	5½-4½	
4875.986	A	50	2.20	4.73	4½-3½	
4664.272	A	30	2.20	4.85	4½-4½	$c^{8}D^{o}-x^{8}P$ †
						(127)
*4337.510§	A	80	2.19	5.03	5½-6½	$c^{8}D^{o}-y^{8}F$ †
4335.290	A	25	2.19	5.03	5½-5½	(128)
4304.087	A	25	2.21	5.07	3½-3½	
4292.747	A	25	2.22	5.09	2½-2½	
3191.044	A	125	2.19	6.08	5½-4½	$c^{8}D^{o}-w^{8}P$ †
3172.169	A	30	2.20	6.09	4½-3½	(129)
3200.454	A	60	2.20	6.06	4½-4½	
3177.490	A	30	2.21	6.09	3½-3½	
3206.466	A	400	2.27	6.12	1½-2½	
6752.67	A	2000	2.32	4.14	7½-6½	$a^{8}G^{o}-z^{8}F$ †
7006.16	A	1000	2.31	4.07	6½-5½	(130)
7118.86	A	800	2.30	4.03	5½-4½	
7054.62	A	200	2.26	4.01	4½-3½	
7085.52	A	50	2.24	3.98	3½-2½	
7164.90	A	25	2.23	3.96	2½-1½	
8718.14	A	150	2.31	4.14	8½-8½	
6988.75	A	100	2.30	4.07	5½-5½	
6959.24	A	150	2.26	4.03	4½-4½	
6971.68	A	100	2.24	4.01	3½-3½	
7058.02	A	80	2.23	3.98	2½-2½	
7116.77	A	150	2.22	3.96	1½-1½	
7146.13	A	40	2.22	3.95	½- ½	
8702.12	A	40	2.30	4.14	5½-6½	
7141.17	A	25	2.24	3.97	3½-2½	$a^{8}G^{o}-y^{8}P$ †
						(131)
5621.43	A	100	2.31	4.50	6½-5½	$a^{8}G^{o}-y^{8}D$ †
5510.58	A	80	2.26	4.50	4½-5½	(132)
4998.373	A	200	2.26	4.73	4½-3½	$a^{8}G^{o}-z^{6}F$ †
*4881.925	A	200	2.24	4.77	3½-2½	(133)
4821.955	A	60	2.23	4.79	2½-1½	
4800.100	A	60	2.22	4.79	1½-1½	
4772.728	A	30	2.22	4.81	½- ½	
4755.347	A	30	2.22	4.82	1½-2½	$a^{8}G^{o}-x^{8}P$ †
						(134)
4540.016	A	200	2.32	5.03	7½-6½	$a^{8}G^{o}-y^{8}F$ †
4521.94	A	150	2.31	5.03	6½-5½	(135)
4486.352	A	100	2.30	5.05	5½-4½	
4517.10	A	30	2.30	5.03	5½-6½	
3287.192	A	40	2.30	6.08	5½-4½	$a^{8}G^{o}-w^{8}P$ †
3252.743	A	30	2.26	6.06	4½-4½	(136)
7017.73	A	80	2.25	4.01	2½-3½	$1^{o}-z^{8}F$
7133.16	A	100	2.25	3.98	2½-2½	(137)
7242.24	A	60	2.25	3.98	2½-1½	
7189.57	A	800	2.25	3.97	2½-2½	$1^{o}-y^{8}P$
						(138)

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
Gd II continued						
7385.97	A	80	2.34	4.01	2½-3½	$2^{o}-z^{8}F$
						(139)
5162.47	A	50d	2.34	4.73	2½-3½	$2^{o}-z^{6}F$ †
						(140)
4223.020	A	60	2.34	5.26	2½-3½	$2^{o}-y^{6}P$
						(141)
7748.37	A	40	2.40	3.99	4½-4½	$3^{o}-y^{8}P$ †
						(142)
4965.047	A	60	2.40	4.88	4½-4½	$3^{o}-z^{6}D$
						(143)
4608.030	A	40	2.40	5.07	4½-3½	$3^{o}-y^{8}F$ †
						(144)
8089.96	A	60	2.46	3.99	3½-4½	$4^{o}-y^{8}P$ †
						(145)
5441.17	A	40	2.46	4.73	3½-3½	$4^{o}-z^{6}F$
						(146)
*5178.843§	A	100	2.46	4.85	3½-4½	$4^{o}-x^{8}P$
5200.549	A	30	2.46	4.84	3½-3½	(147)
4726.725	A	40	2.46	5.07	3½-3½	$4^{o}-y^{8}F$ †
						(148)
*3402.072	A	1000	2.46	6.09	3½-3½	$4^{o}-w^{8}P$ †
						(149)

Strongest Unclassified Lines of Gd II

8442.58	A	300	V
8316.38	A	500	V
7963.25	A	500	V
7930.25	A	2000	V
7846.35	A	3000	V
*7844.87 §	A	300	V
7324.89	A	400	V
7147.31	A	500	V
7135.73	A	250	V
7037.26	A	600	V
6985.89	A	1500	V
*6980.86 §	A	250	V
6887.63	A	300	V
5913.55	A	800	V
*5911.45 §	A	500	V
*5754.17 §	A	250	V
5538.32	A	300	V
4397.51	A	300	IV
4304.895	A	400	V
4297.173	A	400	V
4253.612	A	800	V
4238.782	A	500	V
4197.681	A	800	V
4137.104	A	500	V
4111.438	A	500	V
4063.390	A	1500	IV
4062.590	A	500	V
4053.294	A	1000	V
4049.858	A	2000	IV
4022.333	A	300	V
4013.798	A	250	V
4008.913	A	400	V.
3996.320	A	800	IV
3895.791	A	400	V
3842.20	A	400	IV
3801.29	A	400	V
3782.34	A	300	V
3770.69	A	300	V
3733.08	A	300	V
3719.45	A	800	V
3664.60	A	2000	IV
*3457.047§	A	300	V
3364.241	A	500	V
3330.340	A	800	V
3225.460	A	600	V
3084.007	A	250	V
3005.092	A	300	V
3002.860	A	1000	V
2963.605	A	400	V

Tb I No analysis May 1942 (Temperature Class)

Tb II No analysis May 1942 (Temperature Class)

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Dy I	No analysis		May 1942			(Temperature Class)
Dy II	No analysis		May 1942			(Temperature Class)
Ho I	No analysis		May 1942			(Temperature Class)
Ho II	No analysis		May 1942			(Temperature Class)
Er	Not separated		May 1942			

Tm I I P ? Anal D List D Jan 1943

4386.434	A	200	0.00	2.81	3½-	a^2F^o-2
4359.929	A	300	0.00	2.83	3½-	(1) 3
3887.347	A	200	0.00	3.17	3½-	5
3949.275	A	100	1.08	4.21	2½-	a^2F^o-15
3916.476	A	200	1.08	4.23	2½-	(2) 16

Strongest Unclassified Lines of Tm I

5971.28	A	200	I
5895.646	A	300	I
5764.300	A	200	I
5675.853	A	400	I
5631.404	A	150	I
5307.121	A	200	I
4203.730	A	300	I
4187.616	A	500	I
4105.843	A	600	I
4094.188	A	700	I
3883.132	A	400	I
3751.812	A	100	I
3744.066	A	300	I
3717.915	A	500	I

Tm II I P ? Anal B List B Jan 1942

4526.565	A	80	0.00	2.67	4-	a^3F^o-1
4481.273	A	200	0.00	2.75	4-	(1) 2
4199.918	A	100	0.00	2.94	4-4	3
3958.101	A	200	0.00	3.12	4-4?	4
3890.528	A	60	0.00	3.17	4-	5
3848.023	A	1000	0.00	3.21	4-	a^3F^o-6
3761.913	A	600	0.00	3.28	4-4	(2) 7
3761.331	A	800	0.00	3.28	4-3	8
3701.364	A	250	0.00	3.33	4-4	9
3668.088	A	120	0.00	3.36	4-4	10
3608.766	A	200	0.00	3.42	4-3	a^3F^o-11
3536.576	A	80	0.00	3.49	4-3	(3) 12
3425.630	A	150	0.00	3.60	4-4	13
3397.499	A	100	0.00	3.63	4-3	14
3291.001	A	120	0.00	3.75	4-4	15
3276.811	A	50	0.00	3.77	4-4	a^3F^o-16
3258.048	A	150	0.00	3.79	4-3	(4) 17
3241.530	A	200	0.00	3.81	4-4	18
3210.825	A	50	0.00	3.84	4-4	20
3133.886	A	250	0.00	3.94	4-4	22
4677.858	A	40	0.03	2.67	3-	a^3F^o-1
4529.376	A	80	0.03	2.75	3-	(5) 2
4242.153	A	300	0.03	2.94	3-4	3
3995.586	A	80	0.03	3.12	3-4?	4
3883.437	A	200	0.03	3.21	3-	6
3795.759	A	600	0.03	3.28	3-4	a^3F^o-7
3795.169	A	80	0.03	3.28	3-3	(6) 8
3734.124	A	300	0.03	3.33	3-4	9
3700.256	A	300	0.03	3.36	3-4	10
3566.472	A	100	0.03	3.49	3-3	12
3453.665	A	200	0.03	3.60	3-4	a^3F^o-13
3425.082	A	300	0.03	3.63	3-3	(7) 14
3316.875	A	60	0.03	3.75	3-4	15
3302.454	A	150	0.03	3.77	3-4	16
3283.400	A	50	0.03	3.79	3-3	17
3266.633	A	80	0.03	3.81	3-4	a^3F^o-16
3235.448	A	90	0.03	3.84	3-4	(6) 20
3172.828	A	200	0.03	3.92	3-3	21
3157.344	A	180	0.03	3.94	3-4	22
3098.597	A	100	0.03	4.01	3-3?	24
3015.298	A	100	0.03	4.12	3-4	27
3900.790	A	90	1.08	4.25	2-2?	a^3F^o-33
3810.724	A	50	1.08	4.32	2-2	(9) 37
3756.860	A	100	1.08	4.37	2-	40
3704.848	A	50	1.08	4.41	2-3	41
3685.812	A	60	1.08	4.45	2-3	a^3F^o-44
3653.814	A	80	1.08	4.46	2-3	(10) 45
3557.796	A	80	1.08	4.55	2-3	47
3481.750	A	30	1.08	4.63	2-2	48
3285.609	A	60	1.08	4.84	2-2	56
3929.583	A	100	1.11	4.25	3-2?	a^1F^o-33
3838.198	A	200	1.11	4.32	3-2	(11) 37
3798.752	A	80	1.11	4.35	3-2	39
3783.561	A	60	1.11	4.37	3-	40
3730.810	A	40	1.11	4.41	3-3	41

Tm II continued

3678.862	A	80	1.11	4.46	3-3	a^1F^o-45
3431.195	A	100	1.11	4.70	3-4	(12) 52
3399.951	A	70	1.11	4.74	3-4?	53
3374.512	A	100	1.11	4.76	3-2	54
3327.578	A	40	1.11	4.81	3-	55
3267.401	A	80	1.11	4.88	3-3	a^1F^o-57
3236.806	A	150	1.11	4.93	3-4	(13) 58
3231.509	A	60	1.11	4.92	3-3	59

Strongest Unclassified Lines of Tm II

5782.356	B	100	V
5709.976	B	100	IV
4626.565	B	80	IV
3996.518	B	200	III
3817.395	B	100	III
3725.061	B	200	III
3535.522	B	100	III
3462.198	B	300	III
3441.505	B	200	III
3362.619	B	300	III
3309.804	B	100	IV
3240.230	B	125	IV
3151.036	B	200	IV
3131.257	B	400	IV

Yb I I P 6.23 Anal B List D May 1942

5556.48	A	1500	0.00	2.22	0-1	6^1S-6^3P^o (1)
3987.98//	A	2000	0.00	3.09	0-1	6^1S-6^1P^o (2)
7699.49	A	1500	2.43	4.04	2-1	6^3P^o-7^3S
6799.61	A	1000	2.22	4.04	1-1	(3)
6489.10	A	800	2.13	4.04	0-1	

Yb II I P 12.05 Anal D List D May 1942

3289.36	A	800	0.00	3.75	½-1½	6^2S-6^2P^o
3694.19//	A	1000	0.00	3.34	½-½	(1)

Lu I I P 5? Anal B List D May 1943

6004.53	A	100	0.25	2.30	2½-3½	a^2D- $^2F^o$? †
5736.55	A	40	0.00	2.15	1½-2½	(1)
5135.10	A	100	0.25	2.65	2½-2½	a^2D- $^2D^o$? †
5402.57	A	50	0.00	2.28	1½-1½	(2)
4658.03	A	50	0.00	2.65	1½-2½	
3841.17	A	100	0.25	3.46	2½-1½	a^2D- $^2P^o$?
4124.73	A	100	0.00	2.99	1½-½	(3)
3567.84	A	80	0.00	3.46	1½-1½	

Strongest Unclassified Lines of Lu I

5001.15	A	100	III
4518.58	A	200	II
3647.77	A	50	III

Lu II I P ? Anal A List B May 1943

3507.39	A	100	0.00	3.52	0-1	a^1S-z^3P^o (1)
5476.69	A	200	1.75	4.01	3-2	a^3D-z^3P^o
6221.88	A	200	1.54	3.52	2-1	(2)
6463.11	A	200	1.46	3.37	1-0	
4994.14	A	120	1.54	4.01	2-2	
5983.90	A	100d	1.48	3.52	1-1	
4639.62	A	30d	1.46	4.01	1-2	
3876.65	A	100	1.54	4.72	2-1	a^3D-z^1P^o (3)
3077.59	A	150	1.54	5.55	2-3	a^3D-z^3F^o †
3397.07	A	150	1.48	5.09	1-2	(4)
3254.32	A	90	1.75	5.55	3-3	
3472.48	A	120	1.54	5.09	2-2	
4785.42	A	60	2.14	4.72	2-1	a^1D-z^1P^o (5)
3623.96	A	40	2.14	5.55	2-3	a^1D-z^3F^o
4184.26	A	120	2.14	5.09	2-2	(6)
3554.43	A	200	2.14	5.81	2-2	a^1D-z^1D^o (7)

Hf I I P ? Anal D List D Dec 1942

5550.60	A	50	0.00	2.22	2-2	a^3F- 2°
5181.66	A	40	0.00	2.38	2-3	(1) 5°
3777.84	A	50	0.00	3.27	2-1	17°
3682.25	A	200	0.00	3.35	2-2	18°
3497.49	A	150	0.00	3.53	2-3	24°
3472.36	A	100	0.00	3.55	2-1	25°

Hf I continued

3332.73	A	200	0.00	3.70	2-3	a^3F-29°
3162.57	A	80	0.00	3.90	2-2	(2) 32°
3072.88	A	300	0.00	4.02	2-2	34°
3018.32	A	80	0.00	4.09	2-2	35°
2980.82	A	100	0.00	4.14	2-2	37°
4174.33	A	50	0.29	3.25	3-3	a^3F-16°
3583.02	A	60	0.29	3.79	3-4	(3) 30°
3312.87	A	100	0.29	4.02	3-2	34°
3131.81	A	150	0.29	4.23	3-2	41°
3080.84	A	80	0.29	4.30	3-4	a^3F-43°
3067.41	A	80	0.29	4.31	3-2	(4) 45°
3020.54	A	100	0.29	4.38	3-3	46°
2964.88	A	150	0.29	4.45	3-4	47°
3820.74	A	50	0.56	3.79	4-4	a^3F-30°
3172.94	A	100	0.56	4.45	4-4	(5) 47°
3156.68	A	50	0.56	4.47	4-3	48°
5719.18	A	40	1.11	3.27	2-1	a^3P-17° (6)
5552.12	A	40	0.70	2.92	2-3	a^1D-11° (7)

Hf II I P 14.8 Anal B List B Nov 1942

3253.70	A	80	0.38	4.17	2½-3½	a^2D-z^4F^o
3399.80	A	150	0.00	3.63	1½-2½	(1)
3793.37	A	60	0.38	3.63	2½-2½	
3561.65	A	80	0.00	3.47	1½-1½	
3193.53	A	40	0.38	4.24	2½-2½	a^2D-z^4D^o †
3145.32	A	25	0.00	3.92	1½-1½	(2)
3479.29	A	40	0.38	3.92	2½-1½	
3428.37	A	20	0.00	3.60	1½- ½	
3000.09	A	40	0.38	4.49	2½-1½	a^2D-z^2P^o †
3016.94	A	6	0.00	4.09	1½- ½	(3)
3317.99	A	20	0.38	4.10	2½-2½	a^2D-z^2D^o †
3217.30	A	25	0.38	4.21	2½-1½	(4)
3012.90	A	100	0.00	4.10	1½-2½	
3134.72	A	150	0.38	4.31	2½-2½	a^2D-z^4G^o † (5)
3352.06	A	80	1.03	4.71	4½-4½	a^4F-z^4F^o
3644.35	A	60	0.78	4.17	3½-3½	(6)
4080.44	A	60	0.61	3.63	2½-2½	
4093.16	A	150	0.45	3.47	1½-1½	
3933.65	A	40	1.03	4.17	4½-3½	
4335.15	A	5	0.78	3.63	3½-2½	
3139.67	A	15	0.78	4.71	3½-4½	
3462.65	A	15	0.61	4.17	2½-3½	
3880.82	A	40	0.45	3.63	1½-2½	
3505.22	A	150	1.03	4.55	4½-3½	a^4F-z^4D^o
3569.03	A	80	0.78	4.24	3½-2½	(7)
3719.27	A	70	0.61	3.92	2½-1½	
3918.10	A	100	0.45	3.60	1½- ½	
3273.66	A	6	0.78	4.55	3½-3½	
3394.58	A	25	0.61	4.24	2½-2½	
3552.70	A	40	0.45	3.92	1½-1½	
3126.27	A	6	0.61	4.55	2½-3½	
3255.28	A	25	0.45	4.24	1½-2½	
3176.85	A	50	0.61	4.49	2½-1½	a^4F-z^2P^o
3389.83	A	70	0.45	4.09	1½- ½	(8)
3054.52	A	15	0.45	4.49	1½-1½	
3535.54	A	80	0.61	4.10	2½-2½	a^4F-z^2D^o †
3279.98	A	20	0.45	4.21	1½-1½	(9)
3364.70	A	20	0.45	4.10	1½-2½	
2975.89	A	150	0.61	4.75	2½-3½	a^4F-z^4G^o †
3194.19	A	100	0.45	4.31	1½-2½	(10)
3109.11	A	150	0.76	4.75	3½-3½	
3328.21	A	20	0.61	4.31	2½-2½	
3495.75	A	20	0.78	4.31	3½-2½	
3031.16	A	120	0.61	4.68	2½-1½	a^4F-y^2D^o † (11)
3025.29	A	20	1.03	5.11	4½-3½	a^4F-z^2F^o †
3101.39	A	100	0.76	4.76	3½-2½	(12)
2968.82	A	120	0.81	4.76	2½-2½	
4928.99	A	8	1.68	4.17	2½-3½	a^4P-z^4F^o †
6279.64	A	20	1.66	3.63	2½-2½	(13)
8635.29	A	50	1.66	3.47	2½-1½	
4272.65	A	80	1.66	4.55	2½-3½	a^4P-z^4D^o †
4684.14	A	150	1.60	4.24	1½-2½	(14)
5040.62	A	150	1.48	3.92	½-1½	
5299.85	A	10	1.60	3.92	1½-1½	
5809.50	A	30	1.48	3.60	½- ½	
5463.38	A	10	1.66	3.92	2½-1½	
4387.90	A	40	1.66	4.49	2½-1½	a^4P-z^2P^o
4945.36	A	10	1.60	4.09	1½- ½	(15)
4262.72	A	10	1.60	4.49	1½-1½	
4719.10	A	30	1.48	4.09	½- ½	
5075.92	A	20	1.68	4.10	2½-2½	a^4P-z^2D^o †
4844.00	A	15	1.66	4.21	2½-1½	(18)
4934.46	A	60	1.60	4.10	1½-2½	
4097.21	A	8	1.88	4.66	2½-1½	a^4P-y^2D^o (17)

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
f II continued						
699.73	A	25	1.66	5.00	2½-2½	a⁴P-z⁴P°
800.39	A	5	1.60	4.84	1½-1½	(18)
780.09	A	7	1.48	4.74	½- ½	
883.77	A	20	1.66	4.84	2½-1½	
923.91	A	40	1.60	4.74	1½- ½	
624.00	A	10	1.80	5.00	1½-2½	
865.35	A	20	1.48	4.84	½-1½	
984.03	A	8	1.66	4.76	2½-2½	a⁴P-z²F° † (19)
413.74	A	8	1.86	5.28	2½-1½	a⁴P-y²D° †
349.17	A	5	1.60	5.28	1½-1½	(20)
203.87	A	10	1.66	5.52	2½-3½	a⁴P-y²F° † (21)
605.79	A	30	1.49	4.17	2½-3½	a²F-z⁴F° †
348.40	A	15	1.86	4.17	3½-3½	(22)
787.18	A	30	1.49	3.63	2½-2½	
980.91	A	200	1.88	3.63	3½-2½	
248.95	A	100	1.49	3.47	2½-1½	
588.25	A	10	1.86	4.55	3½-3½	a²F-z⁴D°
486.14	A	30	1.49	4.24	2½-2½	(23)
187.75	A	30	1.86	4.24	3½-2½	
071.23	A	8	1.49	3.92	2½-1½	
029.16	A	10	1.49	4.55	2½-3½	
113.58	A	20	1.49	4.49	2½-1½	a²F-z²P° (24)
524.35	A	50	1.86	4.10	3½-2½	a²F-z²D°
533.18	A	40	1.49	4.21	2½-1½	(25)
735.67	A	20	1.49	4.10	2½-2½	
861.05	A	12	1.86	5.23	3½-4½	a²F-z⁴G°
782.78	A	8	1.49	4.75	2½-3½	(26)
289.67	A	20	1.88	4.75	3½-3½	
370.95	A	100	1.49	4.31	2½-2½	
034.33	A	8	1.86	4.31	3½-2½	
747.48	A	7	1.88	5.16	3½-2½	a²F-y²D° †
872.55	A	20	1.49	4.68	2½-1½	(27)
932.40	A	10	1.86	5.00	3½-2½	a²F-z⁴P° † (28)
797.95	A	10	1.86	5.11	3½-3½	a²F-z²F°
771.38	A	8	1.49	4.78	2½-2½	(29)
407.78	A	15	1.49	5.11	2½-3½	
230.66	A	50	1.88	5.69	3½-4½	a²F-y⁴F°
092.26	A	20	1.49	5.48	2½-3½	(30)
410.18	A	40	1.86	5.48	3½-3½	
182.61	A	40	1.49	5.39	2½-2½	
495.94	A	10	1.88	5.39	3½-2½	
283.39	A	6	1.49	5.25	2½-1½	
378.68	A	4	1.86	5.52	3½-3½	a²F-y²F° †
140.77	A	15	1.49	5.42	2½-2½	(31)
064.68	A	20	1.49	5.52	2½-3½	
046.03	A	20	1.86	5.91	3½-2½	a²F-y⁴D° † (32)
118.95	A	8	1.86	5.82	3½-3½	a²F-z²G° † (33)
644.60	A	200	1.77	3.63	1½-2½	b²D-z⁴F° † (34)
999.89	A	40	1.77	4.24	1½-2½	b²D-z²D° †
935.16	A	50	2.14	3.92	2½-1½	(35)
754.61	A	100	1.77	3.60	1½- ½	
260.44	A	40	2.14	4.49	2½-1½	b²D-z²P°
324.26	A	30	1.77	4.09	1½- ½	(36)
541.31	A	20	1.77	4.49	1½-1½	
058.18	A	10	1.77	4.21	1½-1½	b²D-z²D°
311.80	A	150	1.77	4.10	1½-2½	(37)
731.36	A	40	2.14	4.75	2½-3½	b²D-z⁴G° (38)
249.33	A	30	1.77	4.68	1½-1½	b²D-y²D°
648.35	A	6	1.77	5.16	1½-2½	(39)
330.89	A	40	2.14	5.00	2½-2½	b²D-z⁴P°
020.25	A	5	1.77	4.84	1½-1½	(40)
573.81	A	20	2.14	4.84	2½-1½	
158.90	A	30	2.14	5.11	2½-3½	b²D-z²F° †
137.80	A	40	1.77	4.78	1½-2½	(41)
898.39	A	10	2.14	5.48	2½-3½	b²D-y⁴F° † (42)
935.64	A	20	2.14	5.28	2½-1½	b²D-y²P°
485.16	A	3	1.77	5.31	1½- ½	(43)
518.75	A	15	1.77	5.28	1½-1½	
659.02	A	4	2.14	5.52	2½-3½	b²D-y²F°
384.14	A	10	1.77	5.42	1½-2½	(44)
195.63	A	8	1.77	5.63	1½- ½	b²D-y⁴D° † (45)
110.87	A	40	1.77	5.74	1½- ½	b²D-z²S° (46)
024.78	A	15	2.14	6.22	2½-1½	b²D-y⁴P° † (47)
391.36	A	10	2.20	4.49	1½-1½	a²P-z²P° †
590.73	A	5	1.88	4.09	½- ½	(48)
531.66	A	30	2.20	4.09	1½- ½	
512.61	A	10	2.20	4.10	1½-2½	a²P-z²D° †
298.06	A	100	1.88	4.21	½-1½	(49)
842.23	A	80	2.20	4.31	1½-2½	a²P-z⁴G° (50)
177.50	A	20	2.20	5.18	1½-2½	a²P-y²D° †
417.37	A	100	1.88	4.68	½-1½	(51)

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
Hf II continued						
4319.51	A	8	1.88	4.74	½- ½	a²P-z⁴P° † (52)
3867.32	A	15	2.20	5.39	1½-2½	a²P-y⁴F° †
4049.44	A	10	2.20	5.25	1½-1½	(53)
4008.46	A	8	2.20	5.28	1½-1½	a²P-y²P° †
3597.42	A	10	1.88	5.31	½- ½	(54)
3964.96	A	15	2.20	5.31	1½- ½	
3487.57	A	8	2.20	5.74	1½- ½	a³P-z³S°
3199.99	A	30	1.88	5.74	½- ½	(55)
3206.77	A	4	2.20	6.05	1½-2½	a³P-x³D°
3055.43	A	9	1.88	5.92	½-1½	(56)
4807.14	A	20	2.15	4.71	4½-4½	a³G-z⁴F°
6222.81	A	10	2.19	4.17	3½-3½	(57)
5128.53	A	20	2.15	4.55	4½-3½	a³G-z⁴D° † (58)
4050.67	A	7	2.19	5.23	3½-4½	a³G-z⁴G° †
3998.51	A	6d	2.15	5.23	4½-4½	(59)
4809.18	A	6	2.19	4.75	3½-3½	
4735.75	A	10	2.15	4.75	4½-3½	
5801.71	A	15	2.19	4.31	3½-2½	
4182.40	A	50	2.15	5.11	4½-3½	a³G-z²F° †
4790.72	A	40	2.19	4.76	3½-2½	(60)
3478.98	A	30	2.15	5.69	4½-4½	a³G-y⁴F° †
3701.15	A	40	2.15	5.48	4½-3½	(61)
3849.52	A	25	2.19	5.39	3½-2½	
3661.73	A	2	2.15	5.52	4½-3½	a³G-y²F°
3817.20	A	20	2.19	5.42	3½-2½	(62)
3705.40	A	15	2.19	5.52	3½-3½	
3080.64	A	100	2.15	6.15	4½-4½	a³G-z²G° †
3394.99	A	30	2.19	5.82	3½-3½	(63)
3358.30	A	8	2.15	5.82	4½-3½	
3011.24	A	20	2.19	6.28	3½-2½	a³G-x³F° † (64)
6647.06	A	100	2.86	4.71	4½-4½	b⁴F-z⁴F°
8236.13	A	10	2.67	4.17	3½-3½	(65)
6041.44	A	6	2.67	4.71	3½-4½	
7328.64	A	30	2.49	4.17	2½-3½	
7277.67	A	50	2.86	4.55	4½-3½	b⁴F-z⁴D° †
7861.22	A	8	2.67	4.24	3½-2½	(66)
8581.88	A	5?	2.49	3.92	2½-1½	
9742.28	A	?	2.33	3.60	1½- ½	
6557.91	A	100	2.67	4.55	3½-3½	
7030.33	A	150	2.49	4.24	2½-2½	
7757.89	A	15	2.33	3.92	1½-1½	
5969.38	A	5	2.49	4.55	2½-3½	
•6156.25	A	3d	2.49	4.49	2½-1½	b⁴F-z²P°
7021.23	A	30	2.33	4.09	1½- ½	(67)
7663.09	A	30	2.49	4.10	2½-2½	b⁴F-z²D° † (68)
4334.65	A	30	2.86	5.70	4½-5½	b⁴F-z⁴G°
4817.22	A	80	2.67	5.23	3½-4½	(69)
5444.07	A	30	2.49	4.75	2½-3½	
6230.84	A	20	2.33	4.31	1½-2½	
5194.57	A	6	2.86	5.23	4½-4½	
5929.35	A	5	2.67	4.75	3½-3½	
6511.62	A	6	2.86	4.75	4½-3½	
4622.71	A	100	2.49	5.16	2½-2½	b⁴F-y²D°
5264.95	A	80	2.33	4.68	1½-1½	(70)
5057.03	A	30	2.67	5.11	3½-3½	b⁴F-z²F° †
4699.72	A	40	2.49	5.11	2½-3½	(71)
5079.65	A	60	2.33	4.76	1½-2½	
4350.52	A	150	2.86	5.69	4½-4½	b⁴F-y⁴F° †
4245.84	A	20	2.49	5.39	2½-2½	(72)
4232.43	A	60	2.33	5.25	1½-1½	
4703.62	A	10	2.86	5.48	4½-3½	
4535.38	A	30	2.67	5.39	3½-2½	
4466.41	A	30	2.49	5.25	2½-1½	
4187.68	A	8	2.33	5.28	1½-1½	b⁴F-y²P° † (73)
4640.14	A	20	2.86	5.52	4½-3½	b⁴F-y²F°
4490.60	A	20	2.67	5.42	3½-2½	(74)
4336.66	A	200	2.67	5.52	3½-3½	
4206.59	A	80	2.49	5.42	2½-2½	
4071.22	A	6	2.49	5.52	2½-3½	
3877.11	A	40	2.86	6.04	4½-3½	b⁴F-y⁴D° †
3806.07	A	40	2.67	5.91	3½-2½	(75)
3766.92	A	50	2.49	5.76	2½-1½	
3737.88	A	15	2.33	5.63	1½- ½	
3744.98	A	15	2.86	6.15	4½-4½	b⁴F-z²G° †
3917.47	A	20	2.67	5.82	3½-3½	(76)
3438.24	A	15	2.33	5.92	1½-1½	b⁴F-x²D° † (77)
3218.20	A	8	2.67	6.51	3½-2½	b⁴F-w²D° † (78)
3323.35	A	20	2.86	6.57	4½-3½	b⁴F-w²F° (79)
7561.08	A	10	3.37	5.00	1½-2½	b⁴P-z⁴P° (80)
6306.17	A	5	3.52	5.48	2½-3½	b⁴P-y⁴F° †
6563.86	A	10	3.37	5.25	1½-1½	(81)
6455.85	A	20	3.37	5.28	1½-1½	b⁴P-y²P° † (82)

Laboratory I A	Ref	Int	E P Low	High	J	Multiplet (No)
Hf II continued						
4904.51	A	30	3.52	6.04	2½-3½	b⁴P-y⁴D° †
4848.46	A	20	3.37	5.91	1½-2½	(83)
5080.44	A	10	3.33	5.76	½-1½	
5164.56	A	8	3.52	5.91	2½-2½	
5156.06	A	5	3.37	5.76	1½-1½	
4765.78	A	12	3.33	5.92	½-1½	b⁴P-x²D° (84)
4760.59	A	20	3.33	5.93	½-1½	b⁴P-z⁴S° (85)
4570.70	A	30	3.52	6.22	2½-1½	b⁴P-y⁴P°
4321.36	A	30	3.37	6.22	1½-1½	(86)
4268.10	A	5	3.33	6.22	½-1½	
4426.18	A	9	3.52	6.31	2½-1½	b⁴P-w²D° †
4141.84	A	5	3.33	6.31	½-1½	(87)
4007.36	A	10	3.52	6.60	2½-1½	b⁴P-x⁴P° † (88)
6997.83	A	20	3.47	5.23	4½-4½	b²G-z⁴G° (89)
6135.10	A	20	3.47	5.48	4½-3½	b²G-y⁴F° †
6567.39	A	60	3.51	5.39	3½-2½	(90)
6027.57	A	20	3.47	5.52	4½-3½	b²G-y²F° †
6473.89	A	20	3.51	5.42	3½-2½	(91)
4599.46	A	40	3.47	6.15	4½-4½	b²G-z²G°
5346.30	A	40	3.51	5.82	3½-3½	(92)
5247.10	A	60	3.47	5.82	4½-3½	
4675.45	A	10	3.51	6.15	3½-4½	
4865.43	A	10	3.51	6.05	3½-2½	b²G-x²D° (93)
4125.10	A	5	3.47	6.46	4½-3½	b²G-x²F°
4452.70	A	10	3.51	6.28	3½-2½	(94)
4123.54	A	10	3.51	6.51	3½-2½	b²G-w²D° (95)
3810.59	A	10	3.51	6.75	3½-2½	b²G-x⁴D° † (96)
3979.40	A	40	3.47	6.57	4½-3½	b²G-w²F° (97)
3864.75	A	20	3.47	6.66	4½-3½	b²G-y²G° † (98)
6584.53	A	40	3.82	5.69	5½-4½	a²H-y⁴F°
7983.66	A	5	3.94	5.48	4½-3½	(99)
7016.99	A	6	3.94	5.69	4½-4½	
5289.98	A	10	3.82	6.15	5½-4½	a²H-z²G°
6542.80	A	50	3.94	5.82	4½-3½	(100)
5565.56	A	5	3.94	6.15	4½-4½	
3762.51	A	25	3.94	7.22	4½-3½	a²H-x⁴D° (101)
4682.68	A	8	3.94	6.57	4½-3½	a²H-w²F° (102)
3900.64	A	20	3.82	6.98	5½-5½	a²H-z²H° †
4613.74	A	50	3.94	6.61	4½-4½	(103)
4422.76	A	150	3.82	6.61	5½-4½	
4047.96	A	50	3.82	6.87	5½-4½	a²H-y²G° †
4524.74	A	30	3.94	6.66	4½-3½	(104)
6609.20	A	8	4.05	5.91	2½-2½	c²D-y⁴D° (105)
5110.61	A	7	4.05	6.46	2½-3½	c²D-x²F° (106)
4486.65	A	20	4.05	6.80	2½-2½	c²D-x⁴P° (107)
4241.93	A	7	4.05	6.96	2½-1½	c²D-w²P° (108)
3945.36	A	10n	4.05	7.17	2½-2½	c²D-v²D° (109)
6719.40	A	50	4.62	6.46	3½-3½	b²F-x²F°
7398.96	A	10	4.62	6.28	2½-2½	(110)
6550.01	A	10	4.62	6.51	3½-2½	b²F-w²D°
7278.72	A	6	4.62	6.31	2½-1½	(111)
5673.58	A	10	4.62	6.80	3½-2½	b²F-x⁴P° † (112)
5493.22	A	6	4.62	6.87	3½-4½	b²F-y²G° † (113)
4179.55	A	10	4.62	7.57	2½-1½	b²F-u²D° (114)
3946.00	A	7n	4.62	7.75	3½-2½	b²F-v²F° † (115)

Strongest Unclassified Lines of Hf II

7061.90	A	30?
6850.07	A	60?
6548.72	A	10
4519.02	A	10n
4443.07	A	20

Ta I	I P ?	Anal C	List D	Dec 1942	
5402.51	A	40w	0.00	2.28	1½- ½ a⁴F-1°
5212.75	A	35w	0.00	2.37	1½-2½ (1) 2°
4574.32	A	15	0.00	2.70	1½-1½ 8°
3970.10	A	15	0.00	3.11	1½-2½ 17°
3077.24	A	15d?	0.00	4.01	1½-2½ 52°
5328.38	A	20w	0.25	2.56	2½-1½ a⁴F-4°
5037.65	A	30	0.25	2.70	2½-1½ (2) 8°
2965.54	A	20r	0.25	4.41	2½-1½ 62°

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Ta I continued						
5811.10	A	20d?	0.49	2.61	$3\frac{1}{2}-2\frac{1}{2}$	$a^4F-6°$ (3)
5461.31	A	25	0.69	2.95	$4\frac{1}{2}-3\frac{1}{2}$	$a^4F-12°$
3063.56	A	18r	0.69	4.72	$4\frac{1}{2}-3\frac{1}{2}$	(4)78°
•6995.35	A	20d?	0.75	2.51	$\frac{1}{2}-\frac{1}{2}$	$a^4P-3°$
5776.76	A	20	0.75	2.88	$\frac{1}{2}-\frac{1}{2}$	(5)10°
5413.47	A	20w	0.75	3.03	$\frac{1}{2}-\frac{1}{2}$	14°
5349.08	A	25w	0.75	3.05	$\frac{1}{2}-1\frac{1}{2}$	15°
5136.47	A	30w	0.75	3.15	$\frac{1}{2}-\frac{1}{2}$	18°
4921.29	A	25	0.75	3.25	$\frac{1}{2}-1\frac{1}{2}$	21°
5419.19	A	30w	0.75	3.03	$1\frac{1}{2}-\frac{1}{2}$	$a^4P?-14°$
5354.67	A	30w	0.75	3.05	$1\frac{1}{2}-1\frac{1}{2}$	(6) 15°
•5141.63	A	30w	0.75	3.15	$1\frac{1}{2}-\frac{1}{2}$	18°
4926.02	A	35	0.75	3.25	$1\frac{1}{2}-1\frac{1}{2}$	21°
5939.75	A	20w	1.20	3.28	$\frac{1}{2}-1\frac{1}{2}$	$a^6D-23°$ (7)
5944.01	A	30d?	1.23	3.31	$1\frac{1}{2}-2\frac{1}{2}$	3-24° (8)
5435.27	A	30	1.35	3.62	$1\frac{1}{2}-2\frac{1}{2}$	$a^6D?-35°$ (9)
6045.38	A	30	1.39	3.43	$2\frac{1}{2}-3\frac{1}{2}$	$a^6D-28°$ (10)
7148.61	A	30	1.51	3.24	$3\frac{1}{2}-2\frac{1}{2}$	$a^6D-20°$
6430.76	A	30	1.51	3.43	$3\frac{1}{2}-3\frac{1}{2}$	(11)28°
4936.41	A	30	1.51	4.01	$3\frac{1}{2}-2\frac{1}{2}$	52°
7346.37	A	30	1.65	3.33	$4\frac{1}{2}-3\frac{1}{2}$	$a^6D-26°$
6485.36	A	30	1.65	3.55	$4\frac{1}{2}-4\frac{1}{2}$	(12)32°
5997.24	A	35w	1.65	3.71	$4\frac{1}{2}-4\frac{1}{2}$	39°
5037.33	A	30w	1.65	4.10	$4\frac{1}{2}-3\frac{1}{2}$	53°
5404.95	A	35w	2.13	4.41	$2\frac{1}{2}-1\frac{1}{2}$	9-62° (13)

Ta II See introduction

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4244.374	A	200	0.77	3.68	4-5	$d^4s^2\ ^5D-d^4sp\ ^7D°$†
4680.539	A	400	0.60	3.23	3-3	(1)
4843.829	A	500	0.41	2.96	2-2	
5053.300	A	500	0.21	2.65	1-1	
5006.169	A	400	0.77	3.23	4-3	
5224.680	A	400	0.60	2.96	3-2	
5514.712	A	500	0.41	2.65	2-1	
4102.713	A	150	0.77	3.78	4-3	$d^4s^2\ ^5D-d^4sp\ ^5P°$†
3881.402	A	100	0.60	3.76	3-3	(2)
3835.058	A	(5)	0.41	3.83	2-2	
•3757.093	A	(3)	0.77	4.05	4-4	$d^4s^2\ ^5D-d^4sp\ ^5D°$†
3884.335	A	(3)	0.41	3.60	2-2	(3)
3829.133	A	(3)	0.21	3.43	1-1	
4219.383	A	(5)	0.77	3.69	4-3	
•3570.662	A	(6)	0.60	4.05	3-4	
3760.133	A	(4)	0.41	3.69	2-3	
3631.959	A	(5)	0.21	3.60	1-2	
3682.101	A	(5)	0.77	4.12	4-5	$d^4s^2\ ^5D-d^4sp\ ^5F°$†
•3757.929	A	(3)	0.60	3.88	3-4	(4)
•3872.835	A	(4)	0.41	3.60	2-3	
4047.948	A	(2)	0.21	3.26	1-2	
3847.501	A	(3)	0.00	3.21	0-1	
•3570.662	A	(8)	0.41	3.87	2-1	$d^4s^2\ ^5D-313°$
3326.194	A	60	0.77	4.48	4-5	(5)362°
3300.819	A	150	0.60	4.34	3-4	351°
3215.578	A	150	0.77	4.61	4-5	373°
3191.577	A	60	0.00	3.87	0-1	313°
3176.602	A	30	0.21	4.09	1-2	331°
3046.452	A	50	0.21	4.26	1-2	344°
3041.876	A	25	0.41	4.47	2-1	361°
4008.769	A	1000	0.36	3.44	3-4	$d^5e\ ^7S-d^4sp\ ^7P°$
4074.374	A	500	0.38	3.39	3-3	(6)
4294.623	A	1000	0.36	3.24	3-2	
3887.988	A	300	0.36	3.56	3-4	$d^5s\ ^7S-d^4ep\ ^7D°$
4302.123	A	500	0.36	3.23	3-3	(7)
•4757.565	A	200	0.38	2.98	3-2	
3617.523	A	800	0.38	3.78	3-3	$d^5e\ ^7S-d^4ep\ ^5P°$
3780.770	A	300	0.36	3.63	3-2	(8)
3207.248	A	80	0.36	4.21	3-4	$d^5s\ ^7S-$ 341°
•3049.694	A	60	0.36	4.41	3-2	(9)357°
3017.447	A	80	0.38	4.45	3-4	380°

W II I P ? Anal D List D Dec 1942

3841.42	A	150	1.08	4.48	$1\frac{1}{2}-\frac{1}{2}$	$^4F-1°$
3288.57	A	100	1.08	4.83	$1\frac{1}{2}-1\frac{1}{2}$	(1)3°

W II continued

3657.59	A	120	1.09	4.46	$\frac{1}{2}-\frac{1}{2}$	1-1°
3361.11	A	100	1.09	4.76	$\frac{1}{2}-\frac{1}{2}$	(2)2°
3572.48	A	200	1.31	4.76	$1\frac{1}{2}-\frac{1}{2}$	2-2° (3)
3024.51	A	300	1.40	5.48	$2\frac{1}{2}-2\frac{1}{2}$	3-7° (4)
3149.87	A	500	1.63	5.54	$\frac{1}{2}-1\frac{1}{2}$	4-11° (5)
•3189.24	A	100 l	1.66	5.53	$3\frac{1}{2}-4\frac{1}{2}$	5- 9°
3177.22	A	150	1.66	5.54	$3\frac{1}{2}-3\frac{1}{2}$	(6)10°
3051.30	A	400	1.66	5.70	$3\frac{1}{2}-3\frac{1}{2}$	13°
3021.96	A	100	1.66	5.74	$3\frac{1}{2}-4\frac{1}{2}$	15°
3463.52	A	200	1.66	5.22	$2\frac{1}{2}-1\frac{1}{2}$	6- 5°
3179.44	A	150	1.66	5.54	$2\frac{1}{2}-3\frac{1}{2}$	(7)10°
3175.97	A	200	1.66	5.54	$2\frac{1}{2}-1\frac{1}{2}$	11°
3036.68	A	100	1.66	5.72	$2\frac{1}{2}-2\frac{1}{2}$	14°
3343.40	A	120	1.63	5.53	$4\frac{1}{2}-4\frac{1}{2}$	6- 9°
3160.03	A	300	1.63	5.74	$4\frac{1}{2}-4\frac{1}{2}$	(8)15°
3401.90	A	150	1.85	5.48	$2\frac{1}{2}-2\frac{1}{2}$	9- 7°
3342.46	A	300	1.85	5.54	$2\frac{1}{2}-3\frac{1}{2}$	(9)10°
3376.17	A	400	1.87	5.53	$3\frac{1}{2}-4\frac{1}{2}$	10- 9°
•3189.24	A	100 l	1.87	5.74	$3\frac{1}{2}-4\frac{1}{2}$	(10)15°
3555.18	A	120	2.00	5.48	$2\frac{1}{2}-2\frac{1}{2}$	11- 7°
3486.14	A	100	2.00	5.54	$2\frac{1}{2}-1\frac{1}{2}$	(11)11°
3529.57	A	100	2.04	5.54	$4\frac{1}{2}-3\frac{1}{2}$	12-10° (12)
3549.06	A	150	2.05	5.53	$3\frac{1}{2}-4\frac{1}{2}$	13- 9°
3358.62	A	200	2.05	5.72	$3\frac{1}{2}-2\frac{1}{2}$	(13)14°
3343.09	A	100	2.05	5.74	$3\frac{1}{2}-4\frac{1}{2}$	15°
•3343.36	A	100	2.05	5.65	$3\frac{1}{2}-2\frac{1}{2}$	17°
3010.76	A	100	2.35	6.45	$4\frac{1}{2}-3\frac{1}{2}$	15-27° (14)
•3343.36	A	100	2.47	6.28	$3\frac{1}{2}-4\frac{1}{2}$	16-23° (15)
3151.31	A	300	2.87	6.78	$4\frac{1}{2}-5\frac{1}{2}$	19-38° (16)
3345.86	A	200w	2.89	6.58	$2\frac{1}{2}-1\frac{1}{2}$	20-31° (17)

Re I I P 7.85 Anal B List D May 1942

4689.15	A	2000	0.00	2.52	$2\frac{1}{2}-3\frac{1}{2}$	$a^6S-z^8P°$
5275.54	A	1000	0.00	2.34	$2\frac{1}{2}-2\frac{1}{2}$	(1)
3460.47 //	A	1000	0.00	3.57	$2\frac{1}{2}-3\frac{1}{2}$	$a^6S-z^6P°$
3464.72	A	800	0.00	3.56	$2\frac{1}{2}-2\frac{1}{2}$	(2)
3451.88	A	600	0.00	3.58	$2\frac{1}{2}-1\frac{1}{2}$	

Os I I P 8.7 Anal C List D Dec 1942

4420.468	A	400R	0.00	2.79	4-4	1-26°
4260.854	A	200	0.00	2.90	4-5	(1)27°
3528.602	A	400R	0.00	3.50	4-4	32°
3301.559	A	500R	0.00	3.74	4-5	37°
3267.945	A	400R	0.00	3.78	4-4	39°
•3058.66	A	500R	0.00	4.03	4-4	41°
3752.524	A	400R	0.34	3.63	2-3	2-35° (2)
4135.784	A	200	0.51	3.50	3-4	3-32°
3963.628	A	500	0.51	3.63	3-3	(3)35°
3782.195	A	400R	0.51	3.78	3-4	39°
3336.150	A	200R	0.51	4.21	3-3	43°
3262.290	A	500R	0.51	4.30	3-4	45°
3232.055	A	500R	0.51	4.33	3-2	46°
4173.234	A	100	0.64	3.59	5-6	4-34°
3977.231	A	300	0.64	3.74	5-5	(4)37°
3370.588	A	300R	0.64	4.30	5-4	45°
3156.248	A	500R	0.64	4.55	5-5	53°
4112.018	A	150	0.71	3.71	1-2	5-36° (5)
3580.855	A	150R	1.08	4.55	4-5	7-53° (8)

Ir I I P 9.2 Anal B List D Dec 1942

3800.122	A	60r	0.00	3.25	$4\frac{1}{2}-4\frac{1}{2}$	$a^4F-z^6D°$
3448.967	A	60	0.50	4.08	$1\frac{1}{2}-2\frac{1}{2}$	(1)
3513.636	A	60r	0.00	3.51	$4\frac{1}{2}-5\frac{1}{2}$	$a^4F-z^6F°$
3266.446	A	60	0.71	4.49	$2\frac{1}{2}-1\frac{1}{2}$	(2)
3437.006	A	80	0.78	4.37	$3\frac{1}{2}-3\frac{1}{2}$	$a^4F-z^6G°$ (3)
4268.096	A	80	0.88	3.77	$3\frac{1}{2}-3\frac{1}{2}$	$b^4F-z^6D°$ (4)
3368.472	A	60	0.35	4.01	$4\frac{1}{2}-4\frac{1}{2}$	$b^4F-z^6F°$
3992.114	A	80	1.22	4.31	$2\frac{1}{2}-2\frac{1}{2}$	(5)
3220.772	A	100r	0.35	4.18	$4\frac{1}{2}-3\frac{1}{2}$	
3915.384	A	60	1.22	4.37	$2\frac{1}{2}-3\frac{1}{2}$	$b^4F-z^6G°$
3068.897	A	60	0.35	4.37	$4\frac{1}{2}-3\frac{1}{2}$	(6)
3196.917	A	60	0.66	4.74	$3\frac{1}{2}-2\frac{1}{2}$	$b^4F-z^4D°$ (7)
3212.121	A	60	0.66	4.72	$3\frac{1}{2}-4\frac{1}{2}$	$b^4F-z^4G°$ (6)

Pt I I P 9.2 Anal B List D Dec 1942

3315.05	A	8	0.00	3.72	3-4	$a^3D-z^5D°$
3290.23	A	6	1.25	5.00	1-2	(1)
3064.71	A	50	0.00	4.03	3-2	$a^3D-z^3P°$
3139.39	A	10	0.10	4.03	2-2	(2)
3156.59	A	10	1.25	5.16	1-1	
2997.97	A	30	0.10	4.21	2-3	$a^3D-z^3F°$ (3)
3408.14	A	15	0.10	3.72	4-4	$a^3F-z^5D°$
3968.37	A	6	1.25	4.36	3-3	(4)
3042.65	A	20	0.10	4.16	4-5	$a^3F-z^5G°$ (5)
4164.54	A	5	1.25	4.21	3-3	$a^3F-z^3F°$
3638.80	A	8	1.25	4.64	3-4	(6)
5368.97	A	3	1.91	4.21	2-3	
3301.87	A	10	0.81	4.55	2-2	$a^3P-5°$ (7)

Pt II See introduction

Au I I P 9.2 Anal A List D Dec 1942

3122.782	B	(150)	1.13	5.08	$2\frac{1}{2}-1\frac{1}{2}$	$a^2D-6^2P°$
6278.30	A	35n	2.65	4.61	$1\frac{1}{2}-\frac{1}{2}$	(1)
•5064.69	A	15	2.65	5.08	$1\frac{1}{2}-1\frac{1}{2}$	
7510.74	A	200	5.06	6.73	$1\frac{1}{2}-\frac{1}{2}$	$6^2P°-7^2S$
5837.29	A	40	4.61	6.73	$\frac{1}{2}-\frac{1}{2}$	(2)
4792.63	A	100	5.08	7.66	$1\frac{1}{2}-2\frac{1}{2}$	$6^2P°-6^2D$
4065.09	A	45	4.61	7.65	$\frac{1}{2}-1\frac{1}{2}$	(3)
4811.61	A	60	5.08	7.65	$1\frac{1}{2}-1\frac{1}{2}$	

Au II See introduction

Hg I I P 10.39 Anal A List D Dec 1942

5460.742	A	500R	5.44	7.70	2-1	$6^3P°-7^3S$
4358.343	A	300	4.87	7.70	1-1	(1)
4046.557	A	100	4.65	7.70	0-1	
3663.274	A	50R	5.44	8.81	2-2	$6^3P°-6^1D$
3131.845	A	100	4.87	8.81	1-2	(2)
3650.144	A	100R	5.44	8.82	2-3	$6^3P°-6^3D$†
3125.668	B	200R	4.87	8.81	1-2	(3)
5790.659	A	300	6.67	8.81	1-2	$6^1P°-6^1D$ (4)
5769.598	A	300	6.67	8.81	1-2	$6^1P°-6^3D$† (5)

Many lines show fine structure

Hg II See introduction

Tl I I P 6.08 Anal A List D Dec 1942

5350.527//	A	500R	0.96	3.27	$1\frac{1}{2}-\frac{1}{2}$	$6^2P°-7^2S$
3775.724	A	500R	0.00	3.27	$\frac{1}{2}-\frac{1}{2}$	(1)
3519.24	B	500R	0.96	4.47	$1\frac{1}{2}-2\frac{1}{2}$	$6^2P°-6^2D$†
3529.38	B	100R	0.98	4.46	$1\frac{1}{2}-1\frac{1}{2}$	(2)

Many lines show fine structure

Tl II See introduction

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Pb I I P 7.38 Anal A List D Dec 1942						
3639.568	A	500R	0.97	4.36	1-1	$6p^3P-7s^3P^o$ †
3057.812//	A	1000R	1.31	4.36	2-1	(1)
3683.469	A	1000R	0.97	4.32	1-0	
3739.940	A	200	2.65	5.95	2-2	$6p^1D-7s^3P^o$
7228.974	B	(2000)	2.65	4.36	2-1	(2)
3572.734	A	200R	2.65	6.10	2-1	$6p^1D-7s^1P^o$ (3)
Pb II See introduction						
Bi I I P ? Anal B List D Dec 1942						
3067.712//	A	9R	0.00	4.02	$1\frac{1}{2}-\frac{1}{2}$	$6p^4S^o-1$ (1)
4722.852 to 4722.333	B	(8) (10)	1.41	4.02	$1\frac{1}{2}-\frac{1}{2}$	$6p^2P^o-1$ (2)
Wide fine structure						

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Bi II See introduction						
Rn I See introduction						
Ra I I P 5.25 Anal A List D May 1942						
4825.91 //	A	100	0.00	2.56	0-1	$7^1S-7^1P^o$ (1)
Ra II I P 10.10 Anal A List D May 1942						
3814.42 //	A	200	0.00	3.24	$\frac{1}{2}-1\frac{1}{2}$	$7^2S-7^2P^o$
4682.28	A	100	0.00	2.64	$\frac{1}{2}-\frac{1}{2}$	(1)
Th I No analysis Dec 1942						

Laboratory I A	Ref	Int	E P Low	E P High	J	Multiplet (No)
Th II I P ? Anal C List D July 1944						
3539.589	A	400	0.00	3.49	$1\frac{1}{2}-2\frac{1}{2}$	$a^2D-z^4P^o$ † (1)
4277.322	A	400	0.00	2.89	$1\frac{1}{2}-1\frac{1}{2}$	$a^2D-y^2P^o$ † (2)
3610.794	A	30	0.51	3.93	$2\frac{1}{2}-3\frac{1}{2}$	$a^2D-y^2F^o$ †
4019.137//	A	1500	0.00	3.07	$1\frac{1}{2}-2\frac{1}{2}$	(3)
3180.199	A	400	0.19	4.07	$2\frac{1}{2}-3\frac{1}{2}$	$a^4F-z^4F^o$ † (4)
3392.040	A	300	0.19	3.83	$2\frac{1}{2}-3\frac{1}{2}$	$a^4F-y^2G^o$ † (5)
4391.114	A	600	0.55	3.36	$2\frac{1}{2}-3\frac{1}{2}$	$a^2F^o-z^4G$ † (8)
4919.814	A	500	0.76	3.27	$3\frac{1}{2}-2\frac{1}{2}$	$a^4H^o-z^4G$ † (7)
Th III See introduction						
U Not separated Dec 1942						

FORBIDDEN LINES

I A	E P Low	E P High	J	Multiplet (No)
Be I I P 9.28				
4548.3	0.00	(2.71)	0-1	$2s^2\ ^1S-2s2p^3P^o$ (1F)
C I I P 11.20				
9849.5	0.01	1.26	2-2	$2p^2\ ^3P-2p^2\ ^1D$ (1F)
9823.4	0.00	1.26	1-2	
9808.9	0.00	1.26	0-2	
4627.3	0.01	2.67	2-0	$2p^2\ ^3P-2p^2\ ^1S$ (2F)
4621.5	0.00	2.67	1-0	
8727.4	1.26	2.67	2-0	$2p^2\ ^1D-3p^2\ ^1S$ (3F)
N I I P 14.49				
5200.7	0.00	2.37	$1\frac{1}{2}-2\frac{1}{2}$	$2p^3\ ^4S^o-2p^3\ ^2P^o$ (1F)
5198.5	0.00	2.37	$1\frac{1}{2}-1\frac{1}{2}$	
3466.4	0.00	3.56	$1\frac{1}{2}-$	$2p^3\ ^4S^o-2p^3\ ^2P^o$ (2F)
10395.4	2.37	3.56	$2\frac{1}{2}-$	$2p^3\ ^2D^o-2p^3\ ^2P^o$ (3F)
10404.1	2.37	3.56	$1\frac{1}{2}-$	
N II I P 29.49				
6583.6 N	0.02	1.89	2-2	$2p^2\ ^3P-2p^2\ ^1D$ (1F)
6548.1 N	0.01	1.89	1-2	
6527.4	0.00	1.89	0-2	
3070.8	0.02	4.04	2-0	$2p^2\ ^3P-2p^2\ ^1S$ (2F)
3063.0	0.01	4.04	1-0	
5754.8 N	1.89	4.04	2-0	$2p^2\ ^1D-3p^2\ ^1S$ (3F)
O I I P 13.56				
6300.23 L	0.00	1.96	2-2	$2p^4\ ^3P-2p^4\ ^1D$ (1F)
6363.88 L	0.02	1.96	1-2	
2972.3	0.02	4.17	1-0	$2p^4\ ^3P-2p^4\ ^1S$ (2F)
5577.350A	1.96	4.17	2-0	$2p^4\ ^1D-2p^4\ ^1S$ (3F)
O II I P 35.00				
3728.91 N	0.00	3.31	$1\frac{1}{2}-2\frac{1}{2}$	$2p^3\ ^4S^o-2p^3\ ^2D^o$ (1F)
3726.16 N	0.00	3.31	$1\frac{1}{2}-1\frac{1}{2}$	
7319.4	3.31	5.00	$2\frac{1}{2}-1\frac{1}{2}$	$2p^3\ ^2D^o-2p^3\ ^2P^o$ (2F)
7329.9	3.31	5.00	$1\frac{1}{2}-\frac{1}{2}$	
7318.6	3.31	5.00	$2\frac{1}{2}-\frac{1}{2}$	
7330.7	3.31	5.00	$1\frac{1}{2}-1\frac{1}{2}$	
O III I P 54.71				
5006.84 N	0.04	2.50	2-2	$2p^2\ ^3P-2p^2\ ^1D$ (1F)
4958.91 N	0.01	2.50	1-2	
4931.8	0.00	2.50	0-2	
4383.21 N	2.50	5.33	2-0	$2p^2\ ^1D-2p^2\ ^1S$ (2F)
F II I P 34.84				
4789.5	0.00	2.58	2-2	$2p^4\ ^3P-2p^4\ ^1D$ (1F)
4869.3	0.04	2.58	1-2	
4157.5	2.58	5.55	2-0	$2p^4\ ^1D-2p^4\ ^1S$ (2F)
F III I P 62.39				
5721.2	4.21	6.36	$2\frac{1}{2}-$	$2p^3\ ^2D^o-2p^3\ ^2P^o$ (1F)
5733.0	4.21	6.36	$1\frac{1}{2}-$	
F IV I P 86.88				
4059.3	0.08	3.12	2-2	$2p^2\ ^3P-2p^2\ ^1D$ (1F)
3996.3	0.03	3.12	1-2	
3532.2	3.12	6.61	2-0	$2p^2\ ^1D-2p^2\ ^1S$ (2F)
Ne III I P 63.3				
3868.74 N	0.00	3.19	2-2	$2p^4\ ^3P-2p^4\ ^1D$ (1F)
3967.51 N	0.08	3.19	1-2	
3342.9	3.19	6.88	2-0	$2p^4\ ^1D-2p^4\ ^1S$ (2F)
Ne IV I P 96				
4716 ?	(4.76	7.38)	$2\frac{1}{2}-1\frac{1}{2}$	$2p^3\ ^2D^o-2p^3\ ^2P^o$ (1F)
4720 ?	(4.76	7.38)	$1\frac{1}{2}-\frac{1}{2}$	
4714 ?	(4.76	7.38)	$2\frac{1}{2}-\frac{1}{2}$	
4717 ?	(4.76	7.38)	$1\frac{1}{2}-1\frac{1}{2}$	
Ne V I P 126				
3425.8 N	0.10	(3.74)	2-2	$2p^2\ ^3P-2p^2\ ^1D$ (1F)
3345.9 N	0.05	(3.74)	1-2	
2972 ?	(3.74	7.89)	2-0	$2p^2\ ^1D-2p^2\ ^1S$ (2F)
Na IV I P 98.5				
3319.3	0.00	3.72	2-2	$2p^4\ ^3P-2p^4\ ^1D$ (1F)
3445.9	0.14	3.72	1-2	
Na V I P 138.0				
4011.2	5.83	8.90	$2\frac{1}{2}-1\frac{1}{2}$	$2p^3\ ^2D^o-2p^3\ ^2P^o$ (1F)
4021.6	5.83	8.90	$1\frac{1}{2}-\frac{1}{2}$	
4017.5	5.83	8.90	$2\frac{1}{2}-\frac{1}{2}$	
4015.3	5.83	8.90	$1\frac{1}{2}-1\frac{1}{2}$	
Mg VI I P 188.1				
3485.5	6.70	10.24	$2\frac{1}{2}-1\frac{1}{2}$	$2p^3\ ^2D^o-2p^3\ ^2P^o$ (1F)
3503.0	6.70	10.23	$1\frac{1}{2}-\frac{1}{2}$	
3500.4	6.70	10.23	$2\frac{1}{2}-\frac{1}{2}$	
3488.1	6.70	10.24	$1\frac{1}{2}-1\frac{1}{2}$	
Al VII I P 241.1				
3074.0	7.59	11.61	$2\frac{1}{2}-1\frac{1}{2}$	$2p^3\ ^2D^o-2p^3\ ^2P^o$ (1F)
3093.4	7.59	11.58	$1\frac{1}{2}-\frac{1}{2}$	
3098.7	7.59	11.58	$2\frac{1}{2}-\frac{1}{2}$	
3068.8	7.59	11.61	$1\frac{1}{2}-1\frac{1}{2}$	
Si I I P 8.12				
6589.74	0.03	1.90	2-0	$3p^2\ ^3P-3p^2\ ^1S$ (1F)
6526.85	0.01	1.90	1-0	
10991.52	0.78	1.90	2-0	$3p^2\ ^1D-3p^2\ ^1S$ (2F)
P I I P 10.9				
8787.6	0.00	1.40	$1\frac{1}{2}-2\frac{1}{2}$	$3p^3\ ^4S^o-3p^3\ ^2D^o$ (1F)
8799.1	0.00	1.40	$1\frac{1}{2}-1\frac{1}{2}$	
5332.4	0.00	2.31	$1\frac{1}{2}-1\frac{1}{2}$	$3p^3\ ^4S^o-3p^3\ ^2P^o$ (2F)
5339.7	0.00	2.31	$1\frac{1}{2}-\frac{1}{2}$	
P II I P 19.57				
11898.2	0.08	1.10	2-2	$3p^2\ ^3P-3p^2\ ^1D$ (1F)
11483.2	0.02	1.10	1-2	
4736.6	0.06	2.66	2-0	$3p^2\ ^3P-3p^2\ ^1S$ (2F)
4669.5	0.02	2.66	1-0	
P II continued				
7869.5	1.10	2.86	2-0	$3p^2\ ^1D-3p^2\ ^1S$ (3F)
S I I P 10.31				
10819.8	0.00	1.14	2-2	$3p^4\ ^3P-3p^4\ ^1D$ (1F)
11305.8	0.05	1.14	1-2	
4506.9	0.00	2.74	2-0	$3p^4\ ^3P-3p^4\ ^1S$ (2F)
4589.0	0.05	2.74	1-0	
7724.7	1.14	2.74	2-0	$3p^4\ ^1D-3p^4\ ^1S$ (3F)
S II I P 23.3				
4068.62 N	0.00	3.03	$1\frac{1}{2}-1\frac{1}{2}$	$3p^3\ ^4S^o-3p^3\ ^2P^o$ (1F)
4076.22 N	0.00	3.03	$1\frac{1}{2}-\frac{1}{2}$	
6717.0	0.00	1.84	$1\frac{1}{2}-2\frac{1}{2}$	$3p^3\ ^4S^o-3p^3\ ^2D^o$ (2F)
6731.3	0.00	1.83	$1\frac{1}{2}-1\frac{1}{2}$	
10317.7	1.84	3.03	$2\frac{1}{2}-1\frac{1}{2}$	$3p^3\ ^2D^o-3p^3\ ^2P^o$ (3F)
10336.0	1.83	3.03	$1\frac{1}{2}-\frac{1}{2}$	
10369.7	1.84	3.03	$2\frac{1}{2}-\frac{1}{2}$	
10284.3	1.83	3.03	$1\frac{1}{2}-1\frac{1}{2}$	
S III I P 34.9				
9532.1	0.10	1.40	2-2	$3p^2\ ^3P-3p^2\ ^1D$ (1F)
9069.4	0.04	1.40	1-2	
3796.7	0.10	3.35	2-0	$3p^2\ ^3P-3p^2\ ^1S$ (2F)
3721.1	0.04	3.35	1-0	
6310.2	1.40	3.35	2-0	$3p^2\ ^1D-3p^2\ ^1S$ (3F)
S VIII I P ?				
9917.9	0.00	1.24	$1\frac{1}{2}-\frac{1}{2}$	$2p^5\ ^2P^o-2p^5\ ^2P^o$ (1F)
S XII I P ?				
7536	0.00	1.64	$\frac{1}{2}-1\frac{1}{2}$	$2p^2P-2p^2P$ (1F)
Cl II I P 23.70				
8579.5	0.00	1.44	2-2	$3p^4\ ^3P-3p^4\ ^1D$ (1F)
9125.8	0.09	1.44	1-2	
3583.2	0.00	(3.44)	2-0	$3p^4\ ^3P-3p^4\ ^1S$ (2F)
3675.0	0.09	(3.44)	1-0	
6152.9	1.44	(3.44)	2-0	$3p^4\ ^1D-3p^4\ ^1S$ (3F)
Cl III I P 39.7				
3342.7	0.00	3.69	$1\frac{1}{2}-1\frac{1}{2}$	$3p^3\ ^4S^o-3p^3\ ^2P^o$ (2F)
3353.4	0.00	3.68	$1\frac{1}{2}-\frac{1}{2}$	
5517.2	0.00	2.24	$1\frac{1}{2}-2\frac{1}{2}$	$3p^3\ ^4S^o-3p^3\ ^2D^o$ (1F)
5537.7	0.00	2.23	$1\frac{1}{2}-1\frac{1}{2}$	
8481.6	2.24	3.69	$2\frac{1}{2}-1\frac{1}{2}$	$3p^3\ ^2D^o-3p^3\ ^2P^o$ (3F)
8501.8	2.23	3.68	$1\frac{1}{2}-\frac{1}{2}$	
8550.5	2.24	3.68	$2\frac{1}{2}-\frac{1}{2}$	
8433.7	2.23	3.69	$1\frac{1}{2}-1\frac{1}{2}$	
Cl IV I P 53.2				
8046.1	0.17	1.70	2-2	$3p^2\ ^3P-3p^2\ ^1D$ (1F)
7530.9	0.06	1.70	1-2	
3203.3	0.17	4.02	2-0	$3p^2\ ^3P-3p^2\ ^1S$ (2F)
3118.3	0.06	4.02	1-0	
5322.2	1.70	4.02	2-0	$3p^2\ ^1D-3p^2\ ^1S$ (3F)

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I A	E P Low	E P High	J	Multiplet (No)
A III I P 40.8				
7135.8	0.00	1.73	2-2	$3p^4\ ^3P-3p^4\ ^1D$ (1F)
7751.0	0.14	1.73	1-2	
3005.1	0.00	(4.11)	2-0	$3p^4\ ^3P-3p^4\ ^1S$ (2F)
3109.0	0.14	(4.11)	1-0	
5191.4 N	1.73	(4.11)	2-0	$3p^4\ ^1D-3p^4\ ^1S$ (3F)
A IV I P 61				
4711.4	0.00	2.62	$1\frac{1}{2}-2\frac{1}{2}$	$3p^3\ ^4S^o-3p^3\ ^2D^o$ (1F)
4740.3	0.00	2.60	$1\frac{1}{2}-1\frac{1}{2}$	
7236.0	2.62	4.33	$2\frac{1}{2}-1\frac{1}{2}$	$3p^3\ ^2D^o-3p^3\ ^2P^o$ (2F)
7263.3	2.60	4.30	$1\frac{1}{2}-\frac{1}{2}$	
7332.0	2.62	4.30	$2\frac{1}{2}-\frac{1}{2}$	
7169.0	2.60	4.33	$1\frac{1}{2}-1\frac{1}{2}$	
A V I P 78				
7006.3	0.25	2.01	2-2	$3p^2\ ^3P-3p^2\ ^1D$ (1F)
6434.9	0.09	2.01	1-2	
4610 ?	2.01	(4.69)	2-0	$3p^2\ ^1D-3p^2\ ^1S$ (2F)
A X I P ?				
5534.6	0.00	2.23	$1\frac{1}{2}-\frac{1}{2}$	$2p^5\ ^2P^o-2p^5\ ^2P^o$ (1F)
A XI I P ?				
6919	0.00	1.78	2-1	$2p^4\ ^3P-2p^4\ ^3P$ (1F)
A XIV I P ?				
4359 ?	0.00	2.83	$\frac{1}{2}-1\frac{1}{2}$	$2p^2P^o-2p^2P^o$ (1F)
K IV I P 62.5				
6101.1	0.00	2.02	2-2	$3p^4\ ^3P-3p^4\ ^1D$ (1F)
6794.8	0.21	2.02	1-2	
4511.0	2.02	4.76	2-0	$3p^4\ ^1D-3p^4\ ^1S$ (2F)
K V I P ?				
4125 ?	0.00	(2.99)	$1\frac{1}{2}-2\frac{1}{2}$	$3p^3\ ^4S^o-3p^3\ ^2D^o$ (1F)
4166 ?	0.00	(2.96)	$1\frac{1}{2}-1\frac{1}{2}$	
6316.6	(2.99	4.95)	$2\frac{1}{2}-1\frac{1}{2}$	$3p^3\ ^2D^o-3p^3\ ^2P^o$ (2F)
6349.5	(2.96	4.91)	$1\frac{1}{2}-\frac{1}{2}$	
6446.5	(2.99	4.91)	$2\frac{1}{2}-\frac{1}{2}$	
6223.4	(2.96	4.95)	$1\frac{1}{2}-1\frac{1}{2}$	
K VI I P ?				
6229.2	0.36	2.34	2-2	$3p^2\ ^3P-3p^2\ ^1D$ (1F)
5603.2	0.14	2.34	1-2	
4097 ?	2.34	(5.35)	2-0	$3p^2\ ^1D-3p^2\ ^1S$ (2F)
Ca I I P 6.09				
4912.82	0.00	2.51	0-2	4^1S-3^3D (1F)
4916.18	0.00	2.51	0-1	
4575.46	0.00	2.70	0-2	4^1S-3^1D (2F)
Ca II I P 11.82				
7291.46	0.00	1.69	$\frac{1}{2}-2\frac{1}{2}$	4^2S-3^2D (1F)
7323.88	0.00	1.69	$\frac{1}{2}-1\frac{1}{2}$	
Ca V I P 84				
5308.9	0.00	2.32	2-2	$3p^4\ ^3P-3p^4\ ^1D$ (1F)
6085.9	0.30	2.32	1-2	
3996.3	2.32	5.41	2-0	$3p^4\ ^1D-3p^4\ ^1S$ (2F)
Ca VI I P ?				
3646.3	0.00	3.38	$1\frac{1}{2}-2\frac{1}{2}$	$3p^3\ ^4S^o-3p^3\ ^2D^o$ (1F)
3702.7	0.00	3.33	$1\frac{1}{2}-1\frac{1}{2}$	
5587.3	3.38	5.59	$2\frac{1}{2}-1\frac{1}{2}$	$3p^3\ ^2D^o-3p^3\ ^2P^o$ (2F)
5631.0	3.33	5.52	$1\frac{1}{2}-\frac{1}{2}$	
5766.4	3.38	5.52	$2\frac{1}{2}-\frac{1}{2}$	
5460.0	3.33	5.59	$1\frac{1}{2}-1\frac{1}{2}$	
Ca VII I P ?				
5615.8	0.50	2.70	2-2	$3p^2\ ^3P-3p^2\ ^1D$ (1F)
4938.6	0.20	2.70	1-2	
3688 ?	2.70	(6.05)	2-0	$3p^2\ ^1D-3p^2\ ^1S$ (2F)
Ca XII I P 655				
3329.3	0.00	3.71	$1\frac{1}{2}-\frac{1}{2}$	$2p^5\ ^2P^o-2p^5\ ^2P^o$ (1F)
Ca XIII I P ?				
4086.5	0.00	3.02	2-1	$2p^4\ ^2P-2p^4\ ^2P$ (1F)
Ca XV I P ?				
5648 ?	0.00	(2.19)	0-1	$2p^2\ ^3P-2p^2\ ^3P$ (1F)
Sc II I P 12.8				
9285.20	0.02	1.35	3-2	a^3D-b^1D (1F)
9191.34	0.01	1.35	2-2	
9134.50	0.00	1.35	1-2	
8649.11	0.02	1.45	3-0	a^3D-a^1S (2F)
8567.60	0.01	1.45	2-0	
8518.20	0.00	1.45	1-0	
8347.24	0.02	1.50	3-2	a^3D-a^3P (3F)
8307.67	0.01	1.49	2-1	
8279.99	0.00	1.49	1-0	
8384.28	0.02	1.49	3-1	
8326.66	0.01	1.49	2-0	
8271.32	0.01	1.50	2-2	
8261.21	0.00	1.49	1-1	
8403.62	0.02	1.49	3-0	
8225.25	0.00	1.50	1-2	
11896.48	0.31	1.35	2-2	a^1D-b^1D (4F)
10872.05	0.31	1.45	2-0	a^1D-a^1S (5F)
10399.33	0.31	1.50	2-2	a^1D-a^3P (6F)
10456.86	0.31	1.49	2-1	
10486.97	0.31	1.49	2-0	
10780.17	0.62	1.76	4-4	a^3F-a^1G (7F)
10660.35	0.60	1.76	3-4	
10569.44	0.59	1.76	2-4	
Sc III I P 24.65				
3945.34	0.02	3.15	$2\frac{1}{2}-\frac{1}{2}$	3^2D-4^2S (1F)
3914.83	0.00	3.15	$1\frac{1}{2}-\frac{1}{2}$	
Sc VI I P 111?				
4672.2	0.00	2.64	2-2	$3p^4\ ^3P-3p^4\ ^1D$ (1F)
5539.6	0.41	2.64	1-2	
3590.8	2.64	6.08	2-0	$3p^4\ ^1D-3p^4\ ^1S$ (2F)
Sc VII I P ?				
4987 ?	(0.08	2.56)	$2\frac{1}{2}-1\frac{1}{2}$	$3p^3\ ^2D^o-3p^3\ ^2P^o$ (1F)
5045 ?	(0.00	2.45)	$1\frac{1}{2}-\frac{1}{2}$	
5224 ?	(0.08	2.45)	$2\frac{1}{2}-\frac{1}{2}$	
4824 ?	(0.00	2.56)	$1\frac{1}{2}-1\frac{1}{2}$	
Ti I I P 6.81				
12168.80	0.05	1.06	4-2	a^3F-a^3P (1F)
12012.60	0.02	1.05	3-1	
11849.83	0.00	1.04	2-0	
11856.02	0.02	1.06	3-2	
11771.95	0.00	1.05	2-1	
11621.54	0.00	1.06	2-2	
8777.26	0.05	1.45	4-4	a^3F-b^3F (2F)
8716.24	0.02	1.44	3-3	
8669.28	0.00	1.42	2-2	
8884.12	0.05	1.44	4-3	
8799.09	0.02	1.42	3-2	
8613.35	0.02	1.45	3-4	
8588.84	0.00	1.44	2-3	
8970.23	0.05	1.42	4-2	
8488.93	0.00	1.45	2-4	
8521.66	0.05	1.50	4-4	a^3F-a^1G (3F)
8367.07	0.02	1.50	3-4	
8249.61	0.00	1.50	2-4	
7287.25	0.05	1.74	4-3	a^3F-a^5P (4F)
7213.88	0.02	1.73	3-2	
7150.21	0.00	1.73	2-1	
7328.50	0.05	1.73	4-2	
7238.29	0.02	1.73	3-1	
7173.93	0.02	1.74	3-3	
7126.40	0.00	1.73	2-2	
7087.39	0.00	1.74	2-3	
6739.63	0.05	1.88	4-5	a^3F-a^3G (5F)
6670.76	0.02	1.87	3-4	
6617.12	0.00	1.87	2-3	
6768.65	0.05	1.87	4-4	
6692.48	0.02	1.87	3-3	
6791.02	0.05	1.87	4-3	
6642.57	0.02	1.88	3-5	
6595.88	0.00	1.87	2-4	
5828.12	0.05	2.17	4-3	a^3F-a^3D (6F)
5794.16	0.02	2.15	3-2	
5755.60	0.00	2.14	2-1	
5867.87	0.05	2.15	4-2	
5812.53	0.02	2.14	3-1	
5755.39	0.02	2.17	3-3	
5737.59	0.00	2.15	2-2	
5699.57	0.00	2.17	2-3	
5629.54	0.05	2.24	4-2	a^3F-b^3P (7F)
5587.73	0.02	2.23	3-1	
5555.33	0.00	2.22	2-0	
5561.66	0.02	2.24	3-2	
5535.09	0.00	2.23	2-1	
5509.51	0.00	2.24	2-2	
5614.62	0.05	2.25	4-6	a^3F-a^3H (8F)
5562.94	0.02	2.24	3-5	
5542.54	0.00	2.23	2-4	
5630.85	0.05	2.24	4-5	
5595.31	0.02	2.23	3-4	
5664.02	0.05	2.23	4-4	
5584.81	0.05	2.26	4-4	a^3F-b^1G (9F)
5518.00	0.02	2.26	3-4	
5466.67	0.00	2.26	2-4	
5396.71	0.05	2.33	4-2	a^3F-c^3P (10F)
5358.79	0.02	2.32	3-1	
5312.52	0.00	2.32	2-0	
5334.30	0.02	2.33	3-2	
5310.36	0.00	2.32	2-1	
5286.31	0.00	2.33	2-2	
5025.53	0.02	2.48	3-1	a^3F-a^1P (11F)
4982.92	0.00	2.48	2-1	
5043.30	0.05	2.49	4-2	a^3F-b^1D (12F)
4988.75	0.02	2.49	3-2	
4946.76	0.00	2.49	2-2	
4898.49	0.05	2.57	4-5	a^3F-a^1H (13F)
4847.01	0.02	2.57	3-5	
11933.60	0.84	1.88	5-5	a^5F-a^3G (14F)
11881.68	0.83	1.87	4-4	
11835.06	0.82	1.87	3-3	
12024.89	0.84	1.87	5-4	
11950.77	0.83	1.87	4-3	
11792.55	0.83	1.88	4-5	
11767.30	0.82	1.67	3-4	
11748.60	0.81	1.87	2-3	
12095.67	0.84	1.87	5-3	
11679.85	0.82	1.88	3-5	
11681.81	0.81	1.87	2-4	
11690.94	0.81	1.87	1-3	
9258.83	0.83	2.17	4-3	a^5F-a^3D (15F)
9288.45	0.82	2.15	3-2	
9281.86	0.81	2.14	2-1	
9189.22	0.82	2.17	3-3	
9235.10	0.81	2.15	2-2	
9245.82	0.81	2.14	1-1	
9137.01	0.81	2.17	2-3	
9199.44	0.81	2.15	1-2	

FORBIDDEN LINES

Ti I continued

I A	E P Low	E P High	J	Multiplet (No)
8705.08	0.82	2.24	3-2	a^5F-b^3P
8721.54	0.81	2.23	2-1	(16F)
8739.71	0.81	2.22	1-0	
8658.20	0.81	2.24	2-2	
8689.73	0.81	2.23	1-1	
8626.85	0.81	2.24	1-2	
8808.47	0.84	2.25	5-6	a^5F-a^3H
8770.71	0.83	2.24	4-5	(17F)
8787.81	0.82	2.23	3-4	
8848.50	0.84	2.24	5-5	
8851.45	0.83	2.23	4-4	
8930.70	0.84	2.23	5-4	
8731.38	0.83	2.25	4-6	
8708.23	0.82	2.24	3-5	
8740.05	0.81	2.23	2-4	
8160.66	0.82	2.33	3-2	a^5F-c^3P
8176.33	0.81	2.32	2-1	(18F)
8153.46	0.81	2.32	1-0	
8119.46	0.81	2.33	2-2	
8148.37	0.81	2.32	1-1	
8091.87	0.81	2.33	1-2	
4521.76	0.84	3.57	5-4	a^5F-a^5D
4515.52	0.83	3.57	4-3	(19F)
4509.85	0.82	3.56	3-2	
4504.71	0.81	3.55	2-1	
4500.00	0.81	3.55	1-0	
4536.05	0.84	3.57	5-3	
4526.55	0.83	3.56	4-2	
4517.36	0.82	3.55	3-1	
4508.52	0.81	3.55	2-0	
4501.36	0.83	3.57	4-4	
4498.90	0.82	3.57	3-3	
4497.23	0.81	3.56	2-2	
4496.21	0.81	3.55	1-1	
4484.84	0.82	3.57	3-4	
4486.35	0.81	3.57	2-3	
4488.76	0.81	3.56	1-2	
4472.37	0.81	3.57	2-4	
4477.91	0.81	3.57	1-3	
9720.20	0.90	2.17	2-3	a^1D-a^3D
9831.29	0.90	2.15	2-2	(20F)
9884.29	0.90	2.14	2-1	
9180.13	0.90	2.24	2-2	a^1D-b^3P
9251.37	0.90	2.23	2-1	(21F)
9308.03	0.90	2.22	2-0	
8576.73	0.90	2.33	2-2	a^1D-c^3P
8640.22	0.90	2.32	2-1	(22F)
8645.95	0.90	2.32	2-0	
7805.66	0.90	2.48	2-1	a^1D-a^1P (23F)
7717.29	0.90	2.49	2-2	a^1D-b^1D (24F)
4430.79	0.90	3.68	2-3	a^1D-a^1F (25F)
11185.14	1.06	2.17	2-3	a^3P-a^3D
11193.04	1.05	2.15	1-2	(26F)
11191.43	1.04	2.14	0-1	
11332.50	1.06	2.15	2-2	
11261.79	1.05	2.14	1-1	
11402.97	1.06	2.14	2-1	
11049.28	1.05	2.17	1-3	
11123.53	1.04	2.15	0-2	
10475.96	1.06	2.24	2-2	a^3P-b^3P
10447.44	1.05	2.23	1-1	(27F)
10568.84	1.06	2.23	2-1	
10519.77	1.05	2.22	1-0	
10356.68	1.05	2.24	1-2	
10386.86	1.04	2.23	0-1	
10642.86	1.06	2.22	2-0	
10297.14	1.04	2.24	0-2	
9697.42	1.06	2.33	2-2	a^3P-c^3P
9674.66	1.05	2.32	1-1	(28F)
9778.67	1.06	2.32	2-1	
9681.84	1.05	2.32	1-0	
9595.12	1.05	2.33	1-2	
9622.68	1.04	2.32	0-1	
9786.00	1.06	2.32	2-0	
9544.00	1.04	2.33	0-2	
8723.13	1.06	2.48	2-1	a^3P-a^1P
8640.27	1.05	2.48	1-1	(29F)
8598.79	1.04	2.48	0-1	
8612.91	1.06	2.49	2-2	a^3P-b^1D
8532.12	1.05	2.49	1-2	(30F)
11665.66	1.44	2.49	3-2	b^3F-b^1D
11520.46	1.42	2.49	2-2	(31F)
11084.87	1.45	2.57	4-5	b^3F-a^1H (32F)
11521.31	1.50	2.57	4-5	a^1G-a^1H (33F)

Ti II I P 13.6

I A	E P Low	E P High	J	Multiplet (No)
11971.26	0.05	1.08	4½-3½	a^4F-a^2D
11782.27	0.03	1.08	3½-1½	(1F)
11735.52	0.03	1.08	3½-2½	
11602.41	0.01	1.08	2½-1½	
11557.08	0.01	1.08	2½-2½	
11477.29	0.00	1.08	1½-1½	
11432.93	0.00	1.08	1½-2½	
11458.27	0.05	1.13	4½-4½	a^4F-a^2G
11396.50	0.03	1.11	3½-3½	(2F)
11618.68	0.05	1.11	4½-3½	
11242.12	0.03	1.13	3½-4½	
11228.14	0.01	1.11	2½-3½	
11078.26	0.01	1.13	2½-4½	
11110.92	0.00	1.11	1½-3½	
10956.10	0.05	1.18	4½-2½	a^4F-a^4P
10901.79	0.03	1.16	3½-1½	(3F)
10784.80	0.01	1.16	2½- ½	
10758.32	0.03	1.18	3½-2½	
10747.64	0.01	1.16	2½-1½	
10676.61	0.00	1.16	1½- ½	
10608.18	0.01	1.18	2½-2½	
10640.19	0.00	1.16	1½-1½	
10503.47	0.00	1.18	1½-2½	
10116.66	0.01	1.23	2½-1½	a^4F-a^2P
10148.57	0.00	1.22	1½- ½	(4F)
10031.39	0.00	1.23	1½-1½	
10379.73	0.05	1.24	4½-2½	a^4F-b^4P
10300.86	0.03	1.23	3½-1½	(5F)
10223.27	0.01	1.22	2½- ½	
10202.05	0.03	1.24	3½-2½	
10163.13	0.01	1.23	2½-1½	
10125.99	0.00	1.22	1½- ½	
10066.92	0.01	1.24	2½-2½	
10066.98	0.00	1.23	1½-1½	
9972.59	0.00	1.24	1½-2½	
8085.17	0.05	1.57	4½-2½	a^4F-b^2D
8060.16	0.03	1.56	3½-1½	(6F)
7976.95	0.03	1.57	3½-2½	
7975.58	0.01	1.56	2½-1½	
7894.10	0.01	1.57	2½-2½	
7916.25	0.00	1.56	1½-1½	
7835.98	0.00	1.57	1½-2½	
8074.29	0.05	1.58	4½-5½	a^4F-a^2H
8028.94	0.03	1.56	3½-4½	(7F)
8138.59	0.05	1.56	4½-4½	
7966.36	0.03	1.58	3½-5½	
7945.02	0.01	1.56	2½-4½	
6725.67	0.05	1.88	4½-4½	a^4F-b^2G
6647.05	0.03	1.88	3½-3½	(8F)
6722.02	0.05	1.88	4½-3½	
6650.61	0.03	1.88	3½-4½	
6589.42	0.01	1.88	2½-3½	
6592.93	0.01	1.88	2½-4½	
6548.87	0.00	1.88	1½-3½	
6095.96	0.03	2.05	3½-1½	a^4F-b^2P
6087.77	0.01	2.04	2½- ½	(9F)
6047.46	0.01	2.05	2½-1½	
6053.14	0.00	2.04	1½- ½	
6013.28	0.00	2.05	1½-1½	
4877.01	0.05	2.58	4½-3½	a^4F-b^2F
4823.44	0.03	2.59	3½-2½	(10F)
4862.80	0.05	2.59	4½-2½	
4837.42	0.03	2.58	3½-3½	
4793.03	0.01	2.59	2½-2½	
4806.83	0.01	2.58	2½-3½	
4771.54	0.00	2.59	1½-2½	
4785.21	0.00	2.58	1½-3½	
4031.15	0.05	3.11	4½-3½	a^4F-c^2D
4041.57	0.03	3.08	3½-1½	(11F)
4004.07	0.03	3.11	3½-2½	
4020.20	0.01	3.08	2½-1½	
3983.08	0.01	3.11	2½-3½	
4005.07	0.00	3.08	1½-1½	
3968.23	0.00	3.11	1½-3½	
11857.96	0.13	1.18	3½-2½	b^4F-a^4P
11884.57	0.12	1.16	2½-1½	(12F)
11823.03	0.11	1.16	1½- ½	
11714.28	0.12	1.18	2½-2½	
11778.39	0.11	1.16	1½-1½	
11611.10	0.11	1.18	1½-2½	
11117.80	0.12	1.23	2½-1½	b^4F-a^2P
11178.94	0.11	1.22	1½- ½	(13F)
11024.82	0.11	1.23	1½-1½	
11185.70	0.13	1.24	3½-2½	b^4F-b^4P
11173.94	0.12	1.23	2½-1½	(14F)
11151.54	0.11	1.22	1½- ½	
11057.76	0.12	1.24	2½-2½	
11080.02	0.11	1.23	1½-1½	
10965.77	0.11	1.24	1½-2½	
8661.20	0.15	1.57	4½-2½	b^4F-b^2D
8661.96	0.13	1.56	3½-1½	(15F)
8565.94	0.13	1.57	3½-2½	
8585.04	0.12	1.56	2½-1½	
8490.71	0.12	1.57	2½-2½	
8529.50	0.11	1.56	1½-1½	
8436.37	0.11	1.57	1½-2½	

Ti II continued

I A	E P Low	E P High	J	Multiplet (No)
8648.72	0.15	1.58	4½-5½	b^4F-a^2H
8625.93	0.13	1.56	3½-4½	(16F)
8722.54	0.15	1.56	4½-4½	
8553.73	0.13	1.58	3½-5½	
8549.64	0.12	1.56	2½-4½	
7119.56	0.15	1.88	4½-4½	b^4F-b^2G
7051.04	0.13	1.88	3½-3½	(17F)
7115.47	0.15	1.88	4½-3½	
7055.06	0.13	1.88	3½-4½	
6999.99	0.12	1.88	2½-3½	
7003.95	0.12	1.88	2½-4½	
6963.02	0.11	1.88	1½-3½	
6434.04	0.13	2.05	3½-1½	b^4F-b^3P
6436.55	0.12	2.04	2½- ½	(18F)
6391.51	0.12	2.05	2½-1½	
6405.27	0.11	2.04	1½- ½	
6360.66	0.11	2.05	1½-1½	
5080.84	0.15	2.58	4½-3½	b^4F-b^2F
5032.69	0.13	2.59	3½-2½	(19F)
5065.43	0.15	2.59	4½-2½	
5047.91	0.13	2.58	3½-3½	
5006.63	0.12	2.59	2½-2½	
5021.69	0.12	2.58	2½-3½	
4987.68	0.11	2.59	1½-2½	
5002.63	0.11	2.58	1½-3½	
4169.41	0.15	3.11	4½-2½	b^4F-c^2D
4187.46	0.13	3.08	3½-1½	(20F)
4147.21	0.13	3.11	3½-2½	
4169.40	0.12	3.08	2½-1½	
4129.49	0.12	3.11	2½-2½	
4156.25	0.11	3.08	1½-1½	
4116.60	0.11	3.11	1½-2½	
9649.94	0.60	1.88	3½-4½	a^3F-b^2G
9398.59	0.57	1.88	2½-3½	(21F)
9642.42	0.60	1.88	3½-3½	
9405.71	0.57	1.88	2½-4½	
6250.51	0.60	2.58	3½-3½	a^3F-b^3F
6124.57	0.57	2.59	2½-2½	(22F)
6227.19	0.60	2.59	3½-2½	
6147.13	0.57	2.58	2½-3½	
4925.84	0.60	3.11	3½-2½	a^3F-c^2D
4916.81	0.57	3.08	2½-1½	(23F)
4982.73	0.60	3.08	3½-1½	
4861.41	0.57	3.11	2½-2½	
8229.81	1.08	2.58	2½-3½	a^2D-b^2F
8166.83	1.08	2.59	1½-2½	(24F)
8189.44	1.08	2.59	2½-2½	
7917.03	1.08	2.63	1½- ½	a^2D-a^2S (25F)
6077.80	1.08	3.11	2½-2½	a^2D-c^2D
6151.82	1.08	3.08	1½-1½	(26F)
6164.64	1.08	3.08	2½-1½	
6065.34	1.08	3.11	1½-2½	
8491.16	1.13	2.58	4½-3½	a^2G-b^2F
8363.05	1.11	2.59	3½-2½	(27F)
8405.16	1.11	2.58	3½-3½	
6172.91	1.11	3.11	3½-2½	a^2G-c^2D (28F)
8789.70	1.18	2.58	2½-3½	a^4P-b^2F
8651.14	1.16	2.59	1½-2½	(29F)
8743.66	1.18	2.59	2½-2½	
8371.34	1.16	2.63	1½- ½	a^4P-a^2S
8348.93	1.16	2.63	½- ½	(30F)
6377.83	1.18	3.11	2½-2½	a^4P-c^2D
6422.66	1.16	3.08	1½-1½	(31F)
6473.52	1.18	3.08	2½-1½	
6328.46	1.16	3.11	1½-2½	
6409.46	1.16	3.08	½-1½	
9108.42	1.23	2.59	1½-2½	a^2P-b^2F (32F)
8798.79	1.23	2.63	1½- ½	a^2P-a^2S
8703.03	1.22	2.63	½- ½	(33F)
6569.73	1.23	3.11	1½-2½	a^2P-c^2D
6616.12	1.22	3.08	½-1½	(34F)
6671.31	1.23	3.08	1½-1½	
9199.54	1.24	2.58	2½-3½	b^4P-b^2F
9071.07	1.23	2.59	1½-2½	(35F)
9149.11	1.24	2.59	2½-2½	
8763.95	1.23	2.63	1½- ½	b^4P-a^2S
8719.70	1.22	2.63	½- ½	(36F)
6590.88	1.24	3.11	2½-2½	b^4P-c^2D
6651.26	1.23	3.08	1½-1½	(37F)
6693.12	1.24	3.08	2½-1½	
6550.29	1.23	3.11	1½-2½	
6625.75	1.22	3.08	½-1½	

FORBIDDEN LINES

I A	E P Low	E P High	J	Multiplet (No)
Ti II continued				
11478.92	1.56	2.63	1½- ½	b^3D-a^2S (38F)
8039.68	1.57	3.11	2½-2½	b^3D-c^3D (39F)
8106.38	1.56	3.08	1½-1½	
8192.33	1.57	3.08	2½-1½	
7956.90	1.56	3.11	1½-2½	
Ti III I P 27.6				
12417.8	0.05	1.05	4-2	a^3F-a^1D (1F)
12061.0	0.02	1.05	3-2	
11799.5	0.00	1.05	2-2	
9706.8	0.05	1.32	4-2	a^3F-a^3P (2F)
9594.5	0.02	1.31	3-1	
9488.3	0.00	1.30	2-0	
9487.4	0.02	1.32	3-2	
9428.3	0.00	1.31	2-1	
9324.8	0.00	1.32	2-2	
7152.8	0.05	1.78	4-4	a^3F-a^1G (3F)
7033.0	0.02	1.78	3-4	
6991.8	0.00	1.78	2-4	
3337.7	1.05	4.74	2-3	a^1D-a^3D (4F)
3363.2	1.05	4.72	2-2	
3378.4	1.05	4.70	2-1	
3008.4	1.05	5.15	2-2	a^1D-b^1D (5F)
3608.5	1.32	4.74	2-3	a^3P-a^3D (6F)
3622.9	1.31	4.72	1-2	
3631.8	1.30	4.70	0-1	
3638.4	1.32	4.72	2-2	
3640.6	1.31	4.70	1-1	
3656.3	1.32	4.70	2-1	
3593.3	1.31	4.74	1-3	
3226.7	1.32	5.15	2-2	a^3P-b^1D (7F)
3214.5	1.31	5.15	1-2	
3207.6	1.30	5.15	0-2	
4140.4 ?	1.73	4.72	0-2?	a^1S-a^3D (8F)
4163.6 ?	1.73	4.70	0-1?	
3815.5	1.73	5.15	0-2	a^1S-b^1D (9F)
4160.9	1.78	4.74	4-3	a^1G-a^3D (10F)
4200.6	1.78	4.72	4-2	
3661.3	1.78	5.15	4-2	a^1G-b^1D (11F)
Ti VII I P 140				
4144.8	0.00	2.98	2-2	$3p^4\ {}^3P-3p^4\ {}^1D$ (1F)
5104.5	0.56	2.98	1-2	
3263.1	2.98	6.76	2-0	$3p^4\ {}^1D-3p^4\ {}^1S$ (2F)
Ti VIII I P ?				
4468 ?	(0.13	2.90)	2½-1½	$3p^3\ {}^2D^o-3p^3\ {}^2P^o$ (1F)
4545 ?	(0.00	2.72)	1½- ½	
4779 ?	(0.13	2.72)	2½- ½	
4263 ?	(0.00	2.90)	1½-1½	
V II I P 14.1				
11414.22	0.04	1.12	4-4	a^5D-a^3F (1F)
11580.17	0.03	1.09	3-3	
11715.20	0.01	1.07	2-2	
11757.66	0.04	1.09	4-3	
11857.28	0.03	1.07	3-2	
11246.87	0.03	1.12	3-4	
11444.61	0.01	1.09	2-3	
11619.10	0.00	1.07	1-2	
8545.12	0.03	1.47	3-2	a^5D-a^3P (2F)
8763.28	0.01	1.42	2-1	
8878.98	0.00	1.39	1-0	
8471.07	0.01	1.47	2-2	
8709.38	0.00	1.42	1-1	
8420.72	0.00	1.47	1-2	
8682.13	0.00	1.42	0-1	
7533.84	0.04	1.68	4-4	a^5D-b^3F (3F)
7497.68	0.03	1.67	3-3	
7469.44	0.01	1.67	2-2	
7571.69	0.04	1.87	4-3	
7526.94	0.03	1.67	3-2	
7460.57	0.03	1.68	3-4	
7440.62	0.01	1.67	2-3	
7430.26	0.00	1.67	1-2	
V II continued				
7459.30	0.04	1.70	4-3	a^5D-a^5P (4F)
7468.52	0.03	1.68	3-2	
7457.80	0.01	1.67	2-1	
7541.95	0.04	1.68	4-2	
7515.13	0.03	1.67	3-1	
7387.47	0.03	1.70	3-3	
7411.90	0.01	1.68	2-2	
7418.75	0.00	1.67	1-1	
7332.06	0.01	1.70	2-3	
7373.32	0.00	1.68	1-2	
7398.95	0.00	1.67	0-1	
7294.30	0.00	1.70	1-3	
7353.77	0.00	1.68	0-2	
5549.49	0.04	2.27	4-3	a^5D-a^3D (5F)
5537.92	0.03	2.26	3-2	
5504.22	0.01	2.26	2-1	
5509.63	0.03	2.27	3-3	
5496.84	0.01	2.26	2-2	
5482.91	0.00	2.26	1-1	
5478.76	0.01	2.27	2-3	
5475.59	0.00	2.26	1-2	
5472.09	0.00	2.26	0-1	
5282.88	0.03	2.36	3-2	a^5D-b^3P (6F)
5245.25	0.01	2.37	2-1	
5227.25	0.00	2.37	1-0	
5254.49	0.01	2.36	2-2	
5225.90	0.00	2.37	1-1	
5235.07	0.00	2.36	1-2	
5216.07	0.00	2.37	0-1	
4965.31	0.03	2.51	3-2	a^5D-c^3P (7F)
5002.88	0.01	2.48	2-1	
4968.65	0.00	2.49	1-0	
4940.22	0.01	2.51	2-2	
4985.27	0.00	2.48	1-1	
4923.05	0.00	2.51	1-2	
4976.33	0.00	2.48	0-1	
4928.68	0.04	2.55	4-3	a^5D-b^3D (8F)
4898.64	0.03	2.55	3-2	
4896.87	0.01	2.53	2-1	
4897.21	0.03	2.55	3-3	
4874.21	0.01	2.55	2-2	
4880.00	0.00	2.53	1-1	
4872.80	0.01	2.55	2-3	
4857.50	0.00	2.55	1-2	
4871.43	0.00	2.53	0-1	
9570.24	0.39	1.68	5-4	a^5F-b^3F (9F)
9454.15	0.37	1.67	4-3	
9358.90	0.35	1.67	3-2	
9395.23	0.37	1.88	4-4	
9313.72	0.35	1.67	3-3	
9253.44	0.33	1.67	2-2	
9256.51	0.35	1.68	3-4	
9209.25	0.33	1.67	2-3	
9183.58	0.32	1.87	1-2	
9279.59	0.37	1.70	4-3	a^5F-a^5P (10F)
9268.77	0.35	1.68	3-2	
9235.60	0.33	1.67	2-1	
9144.25	0.35	1.70	3-3	
9165.30	0.33	1.68	2-2	
9166.00	0.32	1.67	1-1	
9043.52	0.33	1.70	2-3	
9096.76	0.32	1.68	1-2	
8698.69	0.39	1.81	5-5	a^5F-a^3G (11F)
8627.35	0.37	1.80	4-4	
8579.15	0.35	1.79	3-3	
8774.69	0.39	1.80	5-4	
8698.18	0.37	1.79	4-3	
8553.87	0.37	1.81	4-5	
8510.24	0.35	1.80	3-4	
8490.44	0.33	1.79	2-3	
7477.26	0.39	2.04	5-5	a^5F-b^3G (12F)
7431.08	0.37	2.03	4-4	
7387.74	0.35	2.02	3-3	
7540.14	0.39	2.03	5-4	
7475.84	0.37	2.02	4-3	
7370.00	0.37	2.04	4-5	
7344.03	0.35	2.03	3-4	
7321.87	0.33	2.02	2-3	
6497.76	0.37	2.27	4-3	a^5F-a^3D (13F)
6456.04	0.35	2.26	3-2	
6415.69	0.33	2.26	2-1	
6431.11	0.35	2.27	3-3	
6405.67	0.33	2.26	2-2	
6382.03	0.32	2.26	1-1	
6381.13	0.33	2.27	2-3	
6372.11	0.32	2.26	1-2	
5662.62	0.37	2.55	4-3	a^5F-b^3D (14F)
5613.81	0.35	2.55	3-2	
5605.36	0.33	2.53	2-1	
5611.94	0.35	2.55	3-3	
5575.69	0.33	2.55	2-2	
5579.65	0.32	2.53	1-1	
5573.84	0.33	2.55	2-3	
5550.25	0.32	2.55	1-2	
10800.75	1.12	2.27	4-3	a^3F-a^3D (15F)
10576.98	1.09	2.26	3-2	
10382.14	1.07	2.26	2-1	
10510.25	1.09	2.27	3-3	
10355.93	1.07	2.26	2-2	
10291.94	1.07	2.27	2-3	
V II continued				
9982.17	1.12	2.36	4-4	a^3F-b^1G (16F)
9733.52	1.09	2.36	3-4	
8674.27	1.12	2.55	4-3	a^3F-b^3D (17F)
8490.18	1.09	2.55	3-2	
8413.83	1.07	2.53	2-1	
8485.90	1.09	2.55	3-3	
8347.16	1.07	2.55	2-2	
8343.02	1.07	2.55	2-3	
8235.69	1.09	2.59	3-2	a^3F-a^1D (18F)
8101.03	1.07	2.59	2-2	
8114.85	1.09	3.11	3-2	a^3F-b^1D (19F)
6040.31	1.07	3.11	2-2	
5634.78	1.12	3.31	4-3	a^3F-a^1F (20F)
5554.68	1.09	3.31	3-3	
5493.10	1.07	3.31	2-3	
11918.75	1.42	2.46	1-0	a^3P-a^1S (21F)
11852.49	1.47	2.51	2-2	a^3P-c^3P (22F)
11658.88	1.42	2.48	1-1	
12219.66	1.47	2.48	2-1	
11568.38	1.42	2.49	1-0	
11324.18	1.42	2.51	1-2	
11368.21	1.39	2.48	0-1	
11471.69	1.47	2.55	2-3	a^3P-b^3D (23F)
10983.23	1.42	2.55	1-2	
10835.22	1.39	2.53	0-1	
11479.51	1.47	2.55	2-2	
11098.96	1.42	2.53	1-1	
11606.00	1.47	2.53	2-1	
11019.11	1.47	2.59	2-2	a^3P-a^1D (24F)
10561.05	1.42	2.59	1-2	
9644.96	1.47	2.75	2-1	a^3P-a^1P (25F)
9292.19	1.42	2.75	1-1	
9106.60	1.39	2.75	0-1	
7526.46	1.47	3.11	2-2	a^3P-b^1D (26F)
7309.90	1.42	3.11	1-2	
9356.40	1.57	2.89	6-5	a^3H-a^1H (27F)
9282.92	1.56	2.89	5-5	
9217.51	1.55	2.89	4-5	
8582.52	1.67	3.11	3-2	b^3F-b^1D (28F)
8544.49	1.67	3.11	2-2	
7556.03	1.68	3.31	4-3	b^3F-a^1F (29F)
7518.35	1.67	3.31	3-3	
7489.15	1.67	3.31	2-3	
11444.66	1.81	2.89	5-5	a^3G-a^1H (30F)
11315.52	1.80	2.89	4-5	
8138.62	1.80	3.31	4-3	a^3G-a^1F (31F)
8076.58	1.79	3.31	3-3	
9595.85	2.03	3.31	4-3	b^3G-a^1F (32F)
9522.24	2.02	3.31	3-3	
V III I P 29.6				
8745.0	0.04	1.45	3½-2½	$3d^3\ {}^4F-3d^3\ {}^4P$ (1F)
8735.0	0.02	1.43	2½-1½	
8683.4	0.00	1.42	1½- ½	
8599.1	0.02	1.45	2½-2½	
8625.8	0.00	1.43	1½-1½	
8493.1	0.00	1.45	1½-2½	
8615.4	0.07	1.50	4½-4½	$3d^3\ {}^4F-3d^3\ {}^2G$ (2F)
8598.3	0.04	1.48	3½-3½	
8782.6	0.07	1.48	4½-3½	
8437.9	0.04	1.50	3½-4½	
8457.2	0.02	1.48	2½-3½	
6233.9	0.04	2.02	3½-2½	$3d^3\ {}^4F-3d^3\ {}^2D$ (3F)
6215.6	0.02	2.00	2½-1½	
6159.3	0.02	2.02	2½-2½	
6160.1	0.00	2.00	1½-1½	
6104.8	0.00	2.02	1½-2½	
6098.1	0.07	2.10	4½-5½	$3d^3\ {}^4F-3d^3\ {}^2H$ (4F)
6065.2	0.04	2.08	3½-4½	
V IV I P 48.3				
8815.9	0.04	1.44	3-2	$3d^2\ {}^3F-3d^2\ {}^1D$ (1F)
8575.4	0.00	1.44	2-2	
7611.2	0.04	1.66	3-2	$3d^2\ {}^3F-3d^2\ {}^3P$ (2F)
7551.9	0.00	1.63	2-1	
7431.2	0.00	1.66	2-2	
5446.0	0.09	2.36	4-4	$3d^2\ {}^3F-3d^2\ {}^1G$ (3F)
5326.5	0.04	2.36	3-4	
5237.7	0.00	2.36	2-4	
V VIII I P 173?				
3686	0.00	3.35	2-2	$3p^4\ {}^3P-3p^4\ {}^1D$ (1F)
4734	0.74	3.35	1-2	

FORBIDDEN LINES

I A	E P Low	E P High	J	Multiplet (No)
Cr I I P 6.74				
4577.32	0.00	2.70	3-3	a^7S-a^5P
4575.84	0.00	2.70	3-2	(1F)
4573.93	0.00	2.70	3-1	
4149.52	0.00	2.97	3-2	a^7S-a^3P
4251.99	0.00	2.90	3-1	(2F)
4117.09	0.00	3.00	3-4	a^7S-b^5D
4113.42	0.00	3.00	3-3	(3F)
4114.10	0.00	3.00	3-2	
4116.36	0.00	3.00	3-1	
3672.37	0.00	3.36	3-2	a^7S-b^3P
3678.71	0.00	3.35	3-1	(4F)
7016.80	0.94	2.70	2-3	a^5S-a^5P
7013.33	0.94	2.70	2-2	(5F)
7008.84	0.94	2.70	2-1	
6059.21	0.94	2.97	2-2	a^5S-a^3P
6280.22	0.94	2.90	2-1	(6F)
6420.88	0.94	2.86	2-0	
5990.31	0.94	3.00	2-4	a^5S-b^5D
5982.55	0.94	3.00	2-3	(7F)
5983.99	0.94	3.00	2-2	
5988.76	0.94	3.00	2-1	
5992.15	0.94	3.00	2-0	
5092.97	0.94	3.36	2-2	a^5S-b^3P
5105.16	0.94	3.35	2-1	(8F)
5108.53	0.94	3.35	2-0	
8251.14	1.03	2.53	4-5	a^5D-a^5G
8043.80	1.00	2.53	3-4	(9F)
7938.41	0.98	2.53	2-3	
7867.83	0.96	2.53	1-2	
8183.69	1.03	2.53	4-4	
8045.57	1.00	2.53	3-3	
7940.71	0.98	2.53	2-2	
8185.52	1.03	2.53	4-3	
8047.93	1.00	2.53	3-2	
7387.23	1.03	2.70	4-3	a^5D-a^5P
7269.33	1.00	2.70	3-2	(10F)
7177.04	0.98	2.70	2-1	
7383.38	1.03	2.70	4-2	
7264.51	1.00	2.70	3-1	
7273.06	1.00	2.70	3-3	
7181.74	0.98	2.70	2-2	
7117.45	0.96	2.70	1-1	
7185.39	0.98	2.70	2-3	
7122.07	0.96	2.70	1-2	
7087.10	0.96	2.70	0-1	
7125.65	0.96	2.70	1-3	
7091.68	0.98	2.70	0-2	
6333.46	1.03	2.97	4-2	a^5D-a^3P
6484.72	1.00	2.90	3-1	(11F)
6561.75	0.98	2.86	2-0	
6249.35	1.00	2.97	3-2	
6414.93	0.98	2.90	2-1	
6511.90	0.96	2.86	1-0	
6184.51	0.98	2.97	2-2	
6367.28	0.98	2.90	1-1	
6140.20	0.96	2.97	1-2	
6342.98	0.96	2.90	0-1	
6117.60	0.96	2.97	0-2	
6258.22	1.03	3.00	4-4	a^5D-b^5D
6167.84	1.00	3.00	3-3	(12F)
6106.17	0.98	3.00	2-2	
6067.88	0.96	3.00	1-1	
6249.75	1.03	3.00	4-3	
6169.37	1.00	3.00	3-2	
6111.14	0.98	3.00	2-1	
6071.35	0.96	3.00	1-0	
6176.08	1.00	3.00	3-4	
6104.67	0.98	3.00	2-3	
6062.98	0.96	3.00	1-2	
6045.80	0.96	3.00	0-1	
6251.33	1.03	3.00	4-2	
6174.44	1.00	3.00	3-1	
6114.66	0.98	3.00	2-0	
6112.75	0.98	3.00	2-4	
6061.50	0.96	3.00	1-3	
6040.94	0.96	3.00	0-2	
5975.39	1.03	3.09	4-5	a^5D-a^3G
5949.99	1.00	3.07	3-4	(13F)
5913.34	0.98	3.07	2-3	
6026.18	1.03	3.07	4-4	
5972.59	1.00	3.07	3-3	
6042.37	1.03	3.07	4-3	
5926.18	1.03	3.11	4-4	a^5D-a^3F
5876.92	1.00	3.10	3-3	(14F)
5876.23	0.98	3.08	2-2	
5951.24	1.03	3.10	4-3	
5934.73	1.00	3.08	3-2	
5852.48	1.00	3.11	3-4	
5819.54	0.98	3.10	2-3	
5836.21	0.96	3.08	1-2	
6010.53	1.03	3.08	4-2	
5795.58	0.98	3.11	2-4	
5780.29	0.96	3.10	1-3	
5815.79	0.96	3.08	0-2	

I A	E P Low	E P High	J	Multiplet (No)
Cr I continued				
5285.34	1.03	3.36	4-2	a^5D-b^3P
5239.47	1.00	3.35	3-1	(15F)
5197.31	0.98	3.35	2-0	
5226.64	1.00	3.36	3-2	
5193.82	0.98	3.35	2-1	
5185.98	0.96	3.35	1-0	
5181.21	0.98	3.38	2-2	
5162.53	0.96	3.35	1-1	
5150.07	0.96	3.36	1-2	
5148.55	0.98	3.35	0-1	
5134.16	0.96	3.38	0-2	
5124.41	1.03	3.43	4-5	a^5D-b^3G
5098.44	1.00	3.42	3-4	(16F)
5082.54	0.98	3.41	2-3	
5154.28	1.03	3.42	4-4	
5126.25	1.00	3.41	3-3	
5182.71	1.03	3.41	4-3	
Cr II I P 16.8				
8000.12	0.00	1.54	$2\frac{1}{2}-4\frac{1}{2}$	a^6S-a^6D
8125.50	0.00	1.52	$2\frac{1}{2}-3\frac{1}{2}$	(1F)
8229.81	0.00	1.50	$2\frac{1}{2}-2\frac{1}{2}$	
8308.68	0.00	1.49	$2\frac{1}{2}-1\frac{1}{2}$	
8357.78	0.00	1.48	$2\frac{1}{2}-\frac{1}{2}$	
4992.68	0.00	2.47	$2\frac{1}{2}-3\frac{1}{2}$	a^6S-a^4D
5049.73	0.00	2.44	$2\frac{1}{2}-2\frac{1}{2}$	(2F)
5092.60	0.00	2.42	$2\frac{1}{2}-1\frac{1}{2}$	
5119.47	0.00	2.41	$2\frac{1}{2}-\frac{1}{2}$	
4581.18	0.00	2.69	$2\frac{1}{2}-2\frac{1}{2}$	a^6S-a^4P
4580.80	0.00	2.69	$2\frac{1}{2}-1\frac{1}{2}$	(3F)
4580.88	0.00	2.69	$2\frac{1}{2}-\frac{1}{2}$	
3993.57	0.00	3.09	$2\frac{1}{2}-3\frac{1}{2}$	a^6S-b^4D
3991.47	0.00	3.09	$2\frac{1}{2}-2\frac{1}{2}$	(4F)
3992.08	0.00	3.09	$2\frac{1}{2}-1\frac{1}{2}$	
3993.29	0.00	3.09	$2\frac{1}{2}-\frac{1}{2}$	
3239.07	0.00	3.81	$2\frac{1}{2}-2\frac{1}{2}$	a^6S-b^4P
3298.61	0.00	3.74	$2\frac{1}{2}-1\frac{1}{2}$	(5F)
3337.77	0.00	3.70	$2\frac{1}{2}-\frac{1}{2}$	
3202.25	0.00	3.85	$2\frac{1}{2}-4\frac{1}{2}$	a^6S-a^4F
3207.46	0.00	3.85	$2\frac{1}{2}-3\frac{1}{2}$	(6F)
3212.75	0.00	3.84	$2\frac{1}{2}-2\frac{1}{2}$	
3216.32	0.00	3.84	$2\frac{1}{2}-1\frac{1}{2}$	
3188.79	0.00	3.87	$2\frac{1}{2}-2\frac{1}{2}$	a^6S-a^2D
3170.55	0.00	3.89	$2\frac{1}{2}-1\frac{1}{2}$	(7F)
3089.76	0.00	3.99	$2\frac{1}{2}-3\frac{1}{2}$	a^6S-a^2F
3066.29	0.00	4.02	$2\frac{1}{2}-2\frac{1}{2}$	(8F)
12471.70	1.54	2.53	$4\frac{1}{2}-5\frac{1}{2}$	a^6D-a^4G
12168.18	1.52	2.53	$3\frac{1}{2}-4\frac{1}{2}$	(9F)
11943.75	1.50	2.53	$2\frac{1}{2}-3\frac{1}{2}$	
11789.27	1.49	2.53	$1\frac{1}{2}-2\frac{1}{2}$	
12460.65	1.54	2.53	$4\frac{1}{2}-4\frac{1}{2}$	
12170.50	1.52	2.53	$3\frac{1}{2}-3\frac{1}{2}$	
11951.78	1.50	2.53	$2\frac{1}{2}-2\frac{1}{2}$	
12463.08	1.54	2.53	$4\frac{1}{2}-3\frac{1}{2}$	
12178.83	1.52	2.53	$3\frac{1}{2}-2\frac{1}{2}$	
10719.84	1.54	2.69	$4\frac{1}{2}-2\frac{1}{2}$	a^6D-a^4P
10500.65	1.52	2.69	$3\frac{1}{2}-1\frac{1}{2}$	(10F)
10331.86	1.50	2.69	$2\frac{1}{2}-\frac{1}{2}$	
10502.67	1.52	2.69	$3\frac{1}{2}-2\frac{1}{2}$	
10331.43	1.50	2.69	$2\frac{1}{2}-1\frac{1}{2}$	
10210.20	1.49	2.69	$1\frac{1}{2}-\frac{1}{2}$	
10333.39	1.50	2.69	$2\frac{1}{2}-2\frac{1}{2}$	
10209.78	1.49	2.69	$1\frac{1}{2}-1\frac{1}{2}$	
10137.00	1.48	2.69	$\frac{1}{2}-\frac{1}{2}$	
10211.69	1.49	2.69	$1\frac{1}{2}-2\frac{1}{2}$	
10136.59	1.48	2.69	$\frac{1}{2}-1\frac{1}{2}$	
10138.47	1.48	2.69	$\frac{1}{2}-2\frac{1}{2}$	
7974.31	1.54	3.09	$4\frac{1}{2}-3\frac{1}{2}$	a^6D-b^4D
7845.41	1.52	3.09	$3\frac{1}{2}-2\frac{1}{2}$	(11F)
7752.86	1.50	3.09	$2\frac{1}{2}-1\frac{1}{2}$	
7688.64	1.49	3.09	$1\frac{1}{2}-\frac{1}{2}$	
7965.96	1.54	3.09	$4\frac{1}{2}-2\frac{1}{2}$	
7847.76	1.52	3.09	$3\frac{1}{2}-1\frac{1}{2}$	
7757.43	1.50	3.09	$2\frac{1}{2}-\frac{1}{2}$	
7853.51	1.52	3.09	$3\frac{1}{2}-3\frac{1}{2}$	
7750.56	1.50	3.09	$2\frac{1}{2}-2\frac{1}{2}$	
7684.16	1.49	3.09	$1\frac{1}{2}-1\frac{1}{2}$	
7647.06	1.48	3.09	$\frac{1}{2}-\frac{1}{2}$	
7758.47	1.50	3.09	$2\frac{1}{2}-3\frac{1}{2}$	
7681.89	1.49	3.09	$1\frac{1}{2}-2\frac{1}{2}$	
7642.61	1.48	3.09	$\frac{1}{2}-1\frac{1}{2}$	
7689.65	1.49	3.09	$1\frac{1}{2}-3\frac{1}{2}$	
7640.39	1.48	3.09	$\frac{1}{2}-2\frac{1}{2}$	
5442.82	1.54	3.81	$4\frac{1}{2}-2\frac{1}{2}$	a^6D-b^4P
5552.93	1.52	3.74	$3\frac{1}{2}-1\frac{1}{2}$	(12F)
5615.19	1.50	3.70	$2\frac{1}{2}-\frac{1}{2}$	
5386.27	1.52	3.81	$3\frac{1}{2}-2\frac{1}{2}$	
5505.25	1.50	3.74	$2\frac{1}{2}-1\frac{1}{2}$	
5579.06	1.49	3.70	$1\frac{1}{2}-\frac{1}{2}$	
5341.39	1.50	3.81	$2\frac{1}{2}-2\frac{1}{2}$	
5470.51	1.49	3.74	$1\frac{1}{2}-1\frac{1}{2}$	
5557.14	1.48	3.70	$\frac{1}{2}-\frac{1}{2}$	
5308.68	1.49	3.81	$1\frac{1}{2}-2\frac{1}{2}$	
5449.43	1.48	3.74	$\frac{1}{2}-1\frac{1}{2}$	
5288.83	1.48	3.81	$\frac{1}{2}-2\frac{1}{2}$	

I A	E P Low	E P High	J	Multiplet (No)
Cr II continued				
5339.65	1.54	3.85	$4\frac{1}{2}-4\frac{1}{2}$	a^6D-a^4F
5299.42	1.52	3.85	$3\frac{1}{2}-3\frac{1}{2}$	(13F)
5270.19	1.50	3.84	$2\frac{1}{2}-2\frac{1}{2}$	
5247.84	1.49	3.84	$1\frac{1}{2}-1\frac{1}{2}$	
5354.15	1.54	3.85	$4\frac{1}{2}-3\frac{1}{2}$	
5313.88	1.52	3.84	$3\frac{1}{2}-2\frac{1}{2}$	
5279.80	1.50	3.84	$2\frac{1}{2}-1\frac{1}{2}$	
5285.21	1.52	3.85	$3\frac{1}{2}-4\frac{1}{2}$	
5255.97	1.50	3.85	$2\frac{1}{2}-3\frac{1}{2}$	
5238.35	1.49	3.84	$1\frac{1}{2}-2\frac{1}{2}$	
5228.44	1.48	3.84	$\frac{1}{2}-1\frac{1}{2}$	
5368.91	1.54	3.84	$4\frac{1}{2}-2\frac{1}{2}$	
5323.64	1.52	3.84	$3\frac{1}{2}-1\frac{1}{2}$	
5242.00	1.50	3.85	$2\frac{1}{2}-4\frac{1}{2}$	
5224.30	1.49	3.85	$1\frac{1}{2}-3\frac{1}{2}$	
5219.02	1.48	3.84	$\frac{1}{2}-2\frac{1}{2}$	
5248.64	1.52	3.87	$3\frac{1}{2}-2\frac{1}{2}$	a^6D-a^2D
5157.59	1.50	3.89	$2\frac{1}{2}-1\frac{1}{2}$	(14F)
5206.02	1.50	3.87	$2\frac{1}{2}-2\frac{1}{2}$	
5127.09	1.49	3.89	$1\frac{1}{2}-1\frac{1}{2}$	
5174.95	1.49	3.87	$1\frac{1}{2}-2\frac{1}{2}$	
5108.57	1.48	3.89	$\frac{1}{2}-1\frac{1}{2}$	
5034.05	1.54	3.99	$4\frac{1}{2}-3\frac{1}{2}$	a^6D-a^2F
4924.81	1.52	4.02	$3\frac{1}{2}-2\frac{1}{2}$	(15F)
4985.64	1.52	3.99	$3\frac{1}{2}-3\frac{1}{2}$	
4887.27	1.50	4.02	$2\frac{1}{2}-2\frac{1}{2}$	
4947.17	1.50	3.99	$2\frac{1}{2}-3\frac{1}{2}$	
4859.87	1.49	4.02	$1\frac{1}{2}-2\frac{1}{2}$	
9222.25	2.47	3.81	$3\frac{1}{2}-2\frac{1}{2}$	a^4D-b^4P
9512.58	2.44	3.74	$2\frac{1}{2}-1\frac{1}{2}$	(16F)
9686.70	2.42	3.70	$1\frac{1}{2}-\frac{1}{2}$	
9033.73	2.44	3.81	$2\frac{1}{2}-2\frac{1}{2}$	
9364.08	2.42	3.74	$1\frac{1}{2}-1\frac{1}{2}$	
9590.94	2.41	3.70	$\frac{1}{2}-\frac{1}{2}$	
8899.71	2.42	3.81	$1\frac{1}{2}-2\frac{1}{2}$	
9274.58	2.41	3.74	$\frac{1}{2}-1\frac{1}{2}$	
9806.20	2.47	3.73	$3\frac{1}{2}-4\frac{1}{2}$	a^4D-a^4H
9651.02	2.44	3.72	$2\frac{1}{2}-3\frac{1}{2}$	(17F)
9866.49	2.47	3.72	$3\frac{1}{2}-3\frac{1}{2}$	
8929.91	2.47	3.85	$3\frac{1}{2}-4\frac{1}{2}$	a^4D-a^4F
8792.09	2.44	3.85	$2\frac{1}{2}-3\frac{1}{2}$	(18F)
8703.79	2.42	3.84	$1\frac{1}{2}-2\frac{1}{2}$	
8652.17	2.41	3.84	$\frac{1}{2}-1\frac{1}{2}$	
8970.56	2.47	3.85	$3\frac{1}{2}-3\frac{1}{2}$	
8831.94	2.44	3.84	$2\frac{1}{2}-2\frac{1}{2}$	
8730.02	2.42	3.84	$1\frac{1}{2}-1\frac{1}{2}$	
9012.04	2.47	3.84	$3\frac{1}{2}-2\frac{1}{2}$	
8858.94	2.44	3.84	$2\frac{1}{2}-1\frac{1}{2}$	
8826.02	2.47	3.87	$3\frac{1}{2}-2\frac{1}{2}$	a^4D-a^2D
8520.22	2.44	3.89	$2\frac{1}{2}-1\frac{1}{2}$	(19F)
8653.20	2.44	3.87	$2\frac{1}{2}-2\frac{1}{2}$	
8400.89	2.42	3.89	$1\frac{1}{2}-1\frac{1}{2}$	
8530.15	2.42	3.87	$1\frac{1}{2}-2\frac{1}{2}$	
8328.78	2.41	3.89	$\frac{1}{2}-1\frac{1}{2}$	
8106.88	2.47	3.99	$3\frac{1}{2}-3\frac{1}{2}$	a^4D-a^2F
7806.88	2.44	4.02	$2\frac{1}{2}-2\frac{1}{2}$	(20F)
7947.28	2.47	4.02	$3\frac{1}{2}-2\frac{1}{2}$	
7960.85	2.44	3.99	$2\frac{1}{2}-3\frac{1}{2}$	
7706.58	2.42	4.02	$1\frac{1}{2}-2\frac{1}{2}$	
10373.30	2.53	3.72	$5\frac{1}{2}-6\frac{1}{2}$	a^4G-a^2I
10388.07	2.53	3.72	$4\frac{1}{2}-5\frac{1}{2}$	(21F)
10380.40	2.53	3.72	$5\frac{1}{2}-5\frac{1}{2}$	
10119.57	2.53	3.75	$5\frac{1}{2}-6\frac{1}{2}$	a^4G-a^4H
10223.27	2.53	3.74	$4\frac{1}{2}-5\frac{1}{2}$	(22F)
10305.67	2.53	3.73	$3\frac{1}{2}-4\frac{1}{2}$	
10366.26	2.53	3.72	$2\frac{1}{2}-3\frac{1}{2}$	
10215.85	2.53	3.74	$5\frac{1}{2}-5\frac{1}{2}$	
10307.34	2.53	3.73	$4\frac{1}{2}-4\frac{1}{2}$	
10372.30	2.53	3.72	$3\frac{1}{2}-3\frac{1}{2}$	
10299.79	2.53	3.73	$5\frac{1}{2}-4\frac{1}{2}$	
10373.98	2.53	3.72	$4\frac{1}{2}-3\frac{1}{2}$	
9337.40	2.53	3.85	$5\frac{1}{2}-4\frac{1}{2}$	a^4G-a^4F
9388.12	2.53	3.85	$4\frac{1}{2}-3\frac{1}{2}$	(23F)
9432.18	2.53	3.84	$3\frac{1}{2}-2\frac{1}{2}$	
9457.95	2.53	3.84	$2\frac{1}{2}-1\frac{1}{2}$	
9343.81	2.53	3.85	$4\frac{1}{2}-4\frac{1}{2}$	
9386.74	2.53	3.85	$3\frac{1}{2}-3\frac{1}{2}$	
9427.18	2.53	3.84	$2\frac{1}{2}-2\frac{1}{2}$	
9342.24	2.53	3.85	$3\frac{1}{2}-4\frac{1}{2}$	
9381.78	2.53	3.85	$2\frac{1}{2}-3\frac{1}{2}$	
9228.60	2.53	3.87	$3\frac{1}{2}-2\frac{1}{2}$	a^4G-a^2D
9072.86	2.53	3.89	$2\frac{1}{2}-1\frac{1}{2}$	(24F)
9223.81	2.53	3.87	$2\frac{1}{2}-2\frac{1}{2}$	
8446.39	2.53	3.99	$4\frac{1}{2}-3\frac{1}{2}$	a^4G-a^2F
8272.21	2.53	4.02	$3\frac{1}{2}-2\frac{1}{2}$	(25F)
8445.28	2.53	3.99	$3\frac{1}{2}-3\frac{1}{2}$	
8268.36	2.53	4.02	$2\frac{1}{2}-2\frac{1}{2}$	
8441.27	2.53	3.99	$2\frac{1}{2}-3\frac{1}{2}$	
11056.70	2.69	3.81	$2\frac{1}{2}-2\frac{1}{2}$	a^4P-b^4P
11785.17	2.69	3.74	$1\frac{1}{2}-1\frac{1}{2}$	(26F)
12300.16	2.69	3.70	$\frac{1}{2}-\frac{1}{2}$	
11782.63	2.69	3.74	$2\frac{1}{2}-1\frac{1}{2}$	
12300.77	2.69	3.70	$1\frac{1}{2}-\frac{1}{2}$	
11058.94	2.69	3.81	$1\frac{1}{2}-2\frac{1}{2}$	
11784.62	2.69	3.74	$\frac{1}{2}-1\frac{1}{2}$	

FORBIDDEN LINES

I A	E P Low	E P High	J	Multiplet (No)
Cr II continued				
10696.87	2.69	3.85	2½-3½	a^4P-a^4F
10758.04	2.69	3.84	1½-2½	(27F)
10797.66	2.69	3.84	½-1½	
10755.91	2.69	3.84	2½-2½	
10798.14	2.69	3.84	1½-1½	
10796.00	2.69	3.84	2½-1½	
10491.99	2.69	3.87	2½-2½	a^4P-a^2D
10299.05	2.69	3.89	1½-1½	(28F)
10297.11	2.69	3.89	2½-1½	
10494.00	2.69	3.87	1½-2½	
10298.63	2.69	3.89	½-1½	
9491.15	2.69	3.99	2½-3½	a^4P-a^2F
9274.68	2.69	4.02	1½-2½	(29F)
9273.10	2.69	4.02	2½-2½	
Cr III I P 31				
5785.4	0.07	2.20	4-2	$3d^4\ ^5D-3d^4\ ^3P$
5945.1	0.04	2.12	3-1	(1F)
5712.7	0.04	2.20	3-2	
5884.9	0.02	2.12	2-1	
5689.3	0.02	2.20	2-2	
5843.6	0.01	2.12	1-1	
5618.9	0.01	2.20	1-2	
5823.2	0.00	2.12	0-1	
5600.1	0.00	2.20	0-2	
5550.3	0.07	2.29	4-4	$3d^4\ ^5D-3d^4\ ^3F$
5505.1	0.04	2.29	3-3	(2F)
5471.3	0.02	2.28	2-2	
5572.6	0.07	2.29	4-3	
5523.3	0.04	2.28	3-2	
5483.3	0.04	2.29	3-4	
5453.4	0.02	2.29	2-3	
5435.6	0.01	2.28	1-2	
5591.3	0.07	2.28	4-2	
5432.1	0.02	2.29	2-4	
*5418.0	0.01	2.29	1-3	
	0.00	2.28	0-2	
4894.1	0.07	2.59	4-5	$3d^4\ ^5D-3d^4\ ^3G$
4876.0	0.04	2.57	3-4	(3F)
4870.8	0.02	2.56	2-3	
4928.9	0.07	2.57	4-4	
4911.9	0.04	2.56	3-3	
*4842.4	0.04	2.59	3-5	
4835.4	0.02	2.57	2-4	
*4842.4	0.01	2.56	1-3	
4965.6	0.07	2.56	4-3	
Cr IV I P 50.4				
7390.6	0.12	1.79	4½-2½	$3d^3\ ^4F-3d^3\ ^4P$
7338.0	0.07	1.75	3½-1½	(1F)
7333.4	0.03	1.74	2½- ½	
7180.4	0.07	1.79	3½-2½	
7171.6	0.03	1.75	2½-1½	
7111.4	0.00	1.74	1½- ½	
7021.0	0.03	1.79	2½-2½	
7051.7	0.00	1.75	1½-1½	
6906.1	0.00	1.79	1½-2½	
6915.6	0.12	1.90	4½-4½	$3d^3\ ^4F-3d^3\ ^2G$
6893.2	0.07	1.86	3½-3½	(2F)
7086.7	0.12	1.88	4½-3½	
6731.2	0.07	1.90	3½-4½	
6746.2	0.03	1.86	2½-3½	
6591.0	0.03	1.90	2½-4½	
6640.0	0.00	1.86	1½-3½	
5296.3	0.07	2.40	3½-1½	$3d^3\ ^4F-3d^3\ ^2P$
5209.1	0.03	2.40	2½-1½	(3F)
5145.5	0.00	2.40	1½-1½	
5071.8	0.12	2.55	4½-2½	$3d^3\ ^4F-3d^3\ ^2D$
4976.5	0.07	2.55	3½-1½	(4F)
4971.8	0.07	2.55	3½-2½	
4899.4	0.03	2.55	2½-1½	
4894.8	0.03	2.55	2½-2½	
4843.1	0.00	2.55	1½-1½	
4838.7	0.00	2.55	1½-3½	
4907.6	0.12	2.63	4½-5½	$3d^3\ ^4F-3d^3\ ^2H$
4873.4	0.07	2.60	3½-4½	(5F)
4969.3	0.12	2.60	4½-4½	
4814.0	0.07	2.63	3½-5½	
4799.4	0.03	2.60	2½-4½	
Cr V I P 72.8				
7252.8	0.14	1.84	4-2	$3d^2\ ^3F-3d^2\ ^1D$
6932.4	0.06	1.84	3-2	(1F)
6700.1	0.00	1.84	2-2	
6705.5	0.14	1.98	4-2	$3d^2\ ^3F-3d^2\ ^3P$
6586.7	0.06	1.94	3-1	(2F)
6462.3	0.00	1.91	2-0	
6430.7	0.06	1.98	3-2	
6376.6	0.00	1.94	2-1	
6230.4	0.00	1.98	2-2	
4523.8	0.14	2.87	4-4	$3d^2\ ^3F-3d^2\ ^1G$
4396.9	0.06	2.87	3-4	(3F)
4302.3	0.00	2.87	2-4	
Cr V continued				
9635.9	1.84	3.12	2-0	$3d^2\ ^1D-3d^2\ ^1S$
				(4F)
10807.8	1.98	3.12	2-0	$3d^2\ ^3P-3d^2\ ^1S$
10394.3	1.94	3.12	1-0	(5F)
Cr VIII I P 184?				
10098.2	0.00	1.22	1½- ½	$3p^5\ ^2P°-3p^5\ ^2P°$
				(1F)
Cr IX I P 209?				
3273.5	0.00	3.77	2-2	$3p^4\ ^3P-3p^4\ ^1D$
4407.9	0.97	3.77	1-2	(1F)
Mn II I P 15.57				
10553.58	0.00	1.17	3-2	a^7S-a^5S
				(1F)
6978.57	0.00	1.77	3-4	a^7S-a^5D
6850.42	0.00	1.80	3-3	(2F)
6763.56	0.00	1.82	3-2	
6709.08	0.00	1.84	3-1	
3344.72	0.00	3.69	3-3	a^7S-a^5P
3341.38	0.00	3.69	3-2	(3F)
3337.82	0.00	3.70	3-1	
3049.05	0.00	4.05	3-4	a^7S-b^5D
3042.61	0.00	4.06	3-3	(4F)
3042.44	0.00	4.06	3-2	
3044.52	0.00	4.05	3-1	
4896.65	1.17	3.69	2-3	a^5S-a^5P
4889.49	1.17	3.69	2-2	(5F)
4881.87	1.17	3.70	2-1	
4275.21	1.17	4.06	2-3	a^5S-b^5D
4274.87	1.17	4.06	2-2	(6F)
4278.97	1.17	4.05	2-1	
7547.77	1.77	3.40	4-5	a^5D-a^5G
7696.30	1.80	3.41	3-4	(7F)
7805.96	1.82	3.41	2-3	
7879.32	1.84	3.41	1-2	
7540.74	1.77	3.41	4-4	
7693.38	1.80	3.41	3-3	
7805.47	1.82	3.41	2-2	
7537.93	1.77	3.41	4-3	
7692.91	1.80	3.41	3-2	
6423.45	1.77	3.69	4-3	a^5D-a^5P
6523.23	1.80	3.69	3-2	(8F)
6590.10	1.82	3.70	2-1	
6535.99	1.80	3.69	3-3	
6603.99	1.82	3.69	2-2	
6642.66	1.84	3.70	1-1	
6617.06	1.82	3.69	2-3	
6656.77	1.84	3.69	1-2	
6668.63	1.85	3.70	0-1	
5415.04	1.77	4.05	4-4	a^5D-b^5D
5473.94	1.80	4.06	3-3	(9F)
5530.11	1.82	4.06	2-2	
5574.04	1.84	4.05	1-1	
5394.78	1.77	4.06	4-3	
5473.37	1.80	4.06	3-2	
5536.98	1.82	4.05	2-1	
5579.73	1.84	4.05	1-0	
5494.80	1.80	4.05	3-4	
5530.69	1.82	4.06	2-3	
5567.08	1.84	4.06	1-2	
5561.21	1.85	4.05	0-1	
Mn IV I P 52				
4662.7	0.11	2.76	4-2	$3d^4\ ^5D-3d^4\ ^3P$
4823.3	0.07	2.63	3-1	(1F)
4908.8	0.03	2.55	2-0	
4591.4	0.07	2.76	3-2	
4761.9	0.03	2.63	2-1	
4863.9	0.01	2.55	1-0	
4535.7	0.03	2.76	2-2	
4719.7	0.01	2.63	1-1	
4497.4	0.01	2.76	1-2	
4699.3	0.00	2.63	0-1	
4478.8	0.00	2.76	0-2	
4528.3	0.11	2.83	4-4	$3d^4\ ^5D-3d^4\ ^3F$
4480.6	0.07	2.82	3-3	(2F)
4442.0	0.03	2.81	2-2	
4548.5	0.11	2.82	4-3	
4495.3	0.07	2.81	3-2	
4461.0	0.07	2.83	3-4	
4427.7	0.03	2.82	2-3	
4405.2	0.01	2.81	1-2	
4563.7	0.11	2.81	4-2	
4408.5	0.03	2.83	2-4	
4391.1	0.01	2.82	1-3	
4387.4	0.00	2.81	0-2	
Mn V I P 75.7				
6396.2	0.17	2.10	4½-2½	$3d^3\ ^4F-3d^3\ ^4P$
6346.2	0.10	2.05	3½-1½	(1F)
6220.7	0.04	2.03	2½- ½	
8167.7	0.10	2.10	3½-2½	
6159.3	0.04	2.05	2½-1½	
6088.5	0.00	2.03	1½- ½	
5991.0	0.04	2.10	2½-2½	
6029.7	0.00	2.05	1½-1½	
5868.3	0.00	2.10	1½-2½	
5889.0	0.17	2.27	4½-4½	$3d^3\ ^4F-3d^3\ ^2G$
5863.1	0.10	2.21	3½-3½	(2F)
6089.2	0.17	2.21	4½-3½	
5894.8	0.10	2.27	3½-4½	
5703.3	0.04	2.21	2½-3½	
5543.9	0.04	2.27	2½-4½	
5591.9	0.00	2.21	1½-3½	
4528.7	0.10	2.83	3½-1½	$3d^3\ ^4F-3d^3\ ^2P$
4398.4	0.04	2.85	2½- ½	(3F)
4432.8	0.04	2.83	2½-1½	
4331.9	0.00	2.85	1½- ½	
4365.2	0.00	2.83	1½-1½	
4308.4	0.17	3.04	4½-2½	$3d^3\ ^4F-3d^3\ ^2D$
4196.3	0.10	3.04	3½-1½	(4F)
4203.5	0.10	3.04	3½-2½	
4113.7	0.04	3.04	2½-1½	
4120.7	0.04	3.04	2½-2½	
4055.5	0.00	3.04	1½-1½	
4062.2	0.00	3.04	1½-2½	
Mn VI I P ?				
6277.3	0.21	2.17	4-2	$3d^2\ ^3F-3d^2\ ^1D$
5933.4	0.09	2.17	3-2	(1F)
5679.3	0.00	2.17	2-2	
5907.1	0.21	2.30	4-2	$3d^2\ ^3F-3d^2\ ^3P$
5783.4	0.09	2.23	3-1	(2F)
5625.0	0.00	2.19	2-0	
5601.6	0.09	2.30	3-2	
5541.7	0.00	2.23	2-1	
5374.6	0.00	2.30	2-2	
3866.9	0.21	3.40	4-4?	$3d^2\ ^3F-3d^2\ ^1G$?
3733.6	0.09	3.40	3-4?	(3F)
3631.4	0.00	3.40	2-4?	
Mn IX I P 231?				
7978.7	0.00	1.55	1½- ½	$3p^5\ ^2P°-3p^5\ ^2P°$
				(1F)
Mn X I P 247?				
9997.3	0.00	1.23	2-1	$3p^4\ ^3P-3p^4\ ^3P$
				(1F)
4122.6	1.23	4.23	1-2	$3p^4\ ^3P-3p^4\ ^1D$
				(2F)
Fe I I P 7.858				
8347.55	0.00	1.48	4-4	a^5D-a^3F
8231.57	0.05	1.55	3-3	(1F)
8151.33	0.09	1.60	2-2	
7959.00	0.00	1.55	4-3	
7964.27	0.05	1.60	3-2	
8647.89	0.05	1.48	3-4	
8431.56	0.09	1.55	2-3	
8275.57	0.11	1.60	1-2	
7708.83	0.00	1.60	4-2	
8868.91	0.09	1.48	2-4	
8564.56	0.11	1.55	1-3	
8337.65	0.12	1.60	0-2	
5696.36	0.00	2.17	4-3	a^5D-a^5P
5775.05	0.05	2.19	3-2	(2F)
5804.45	0.09	2.21	2-1	
5639.55	0.00	2.19	4-2	
5708.96	0.05	2.21	3-1	
5834.64	0.05	2.17	3-3	
5872.77	0.09	2.19	2-2	
5867.17	0.11	2.21	1-1	
5934.41	0.09	2.17	2-3	
5936.99	0.11	2.19	1-2	
5898.30	0.12	2.21	0-1	
5999.99	0.11	2.17	1-3	
5968.87	0.12	2.19	0-2	
5439.72	0.00	2.27	4-2	a^5D-a^3P
5224.15	0.05	2.41	3-1	(3F)
5170.84	0.09	2.47	2-0	
5565.68	0.05	2.27	3-2	
5303.99	0.09	2.41	2-1	
5220.56	0.11	2.47	1-0	
5656.39	0.09	2.27	2-2	
5356.32	0.11	2.41	1-1	
5715.94	0.11	2.27	1-2	
5382.26	0.12	2.41	0-1	
5745.49	0.12	2.27	0-2	

FORBIDDEN LINES

Fe I continued

I A	E P Low	E P High	J	Multiplet (No)
4843.34	0.00	2.55	4-4	a^5D-b^3F
4886.56	0.05	2.58	3-3	(4F)
4916.26	0.09	2.60	2-2	
4789.19	0.00	2.58	4-3	
4847.58	0.05	2.60	3-2	
4942.95	0.05	2.55	3-4	
4956.35	0.09	2.58	2-3	
4961.18	0.11	2.60	1-2	
4751.75	0.00	2.60	4-2	
5014.37	0.09	2.55	2-4	
5002.01	0.11	2.58	1-3	
4983.42	0.12	2.60	0-2	
4603.66	0.00	2.68	4-5	a^5D-a^3G
4631.93	0.05	2.72	3-4	(5F)
4640.05	0.09	2.75	2-3	
4544.36	0.00	2.72	4-4	
4578.83	0.05	2.75	3-3	
4693.56	0.05	2.68	3-5	
4694.59	0.09	2.72	2-4	
4680.05	0.11	2.75	1-3	
4493.23	0.00	2.75	4-3	
4377.37	0.00	2.82	4-2	a^5D-b^3P
4437.10	0.05	2.83	3-1	(6F)
4473.46	0.09	2.85	2-0	
4458.57	0.05	2.82	3-2	
4494.57	0.09	2.83	2-1	
4510.63	0.11	2.85	1-0	
4516.60	0.09	2.82	2-2	
4532.09	0.11	2.83	1-1	
4554.49	0.11	2.82	1-2	
4550.64	0.12	2.83	0-1	
4573.23	0.12	2.82	0-2	
4203.39	0.00	2.94	4-5	a^5D-b^3G
4217.71	0.05	2.98	3-4	(7F)
4229.86	0.09	3.00	2-3	
4144.97	0.00	2.98	4-4	
4178.93	0.05	3.00	3-3	
4278.21	0.05	2.94	3-5	
4269.60	0.09	2.98	2-4	
4263.07	0.11	3.00	1-3	
4107.51	0.00	3.00	4-3	
4108.02	0.00	3.00	4-2	a^5D-c^3P
4104.59	0.05	3.06	3-1	(8F)
4099.29	0.09	3.10	2-0	
4179.45	0.05	3.00	3-2	
4153.72	0.09	3.06	2-1	
4130.47	0.11	3.10	1-0	
4230.40	0.09	3.00	2-2	
4185.74	0.11	3.06	1-1	
4263.62	0.11	3.00	1-2	
4201.56	0.12	3.06	0-1	
4280.04	0.12	3.00	0-2	
3812.07	0.00	3.24	4-3	a^5D-a^3D
3814.58	0.05	3.29	3-2	(9F)
3889.58	0.09	3.26	2-1	
3754.98	0.00	3.29	4-2	
3846.46	0.05	3.26	3-1	
3873.51	0.05	3.24	3-3	
3856.98	0.09	3.29	2-2	
3917.64	0.11	3.26	1-1	
3917.23	0.09	3.24	2-3	
3884.57	0.11	3.29	1-2	
3931.50	0.12	3.26	0-1	
3945.70	0.11	3.24	1-3	
3898.19	0.12	3.29	0-2	
3403.65	0.00	3.63	4-3	a^5D-b^3D
3454.34	0.05	3.82	3-2	(10F)
3493.55	0.09	3.62	2-1	
3405.39	0.00	3.62	4-2	
3458.73	0.05	3.82	3-1	
3452.54	0.05	3.83	3-3	
3489.07	0.09	3.82	2-2	
3518.17	0.11	3.62	1-1	
3487.23	0.09	3.63	2-3	
3511.64	0.11	3.82	1-2	
3527.33	0.12	3.62	0-1	
3509.78	0.11	3.83	1-3	
3532.78	0.12	3.82	0-2	
9828.83	0.91	2.17	4-3	a^5F-a^5P
9998.31	0.95	2.19	3-2	(11F)
10055.97	0.99	2.21	2-1	
10178.29	0.95	2.17	3-3	
10282.84	0.99	2.19	2-2	
10229.79	1.01	2.21	1-1	
10452.56	0.99	2.17	2-3	
10443.95	1.01	2.19	1-2	
9386.96	0.95	2.27	3-2	a^5F-a^3P
8843.14	0.99	2.41	2-1	(12F)
8412.97	1.01	2.47	1-0	
9819.74	0.99	2.27	2-2	
8771.24	1.01	2.41	1-1	
9778.70	1.01	2.27	1-2	

Fe I continued

I A	E P Low	E P High	J	Multiplet (No)
8022.25	0.86	2.39	5-6	a^5F-a^3H
8164.85	0.91	2.42	4-5	(13F)
8289.45	0.95	2.44	3-4	
7876.34	0.86	2.42	5-5	
8054.83	0.91	2.44	4-4	
7773.91	0.86	2.44	5-4	
7290.42	0.86	2.55	5-4	a^5F-b^3F
7406.61	0.91	2.58	4-3	(14F)
7510.54	0.95	2.60	3-2	
7168.42	0.86	2.58	5-3	
7317.43	0.91	2.60	4-2	
7536.93	0.91	2.55	4-4	
7604.53	0.95	2.58	3-3	
7658.84	0.99	2.60	2-2	
7741.96	0.95	2.55	3-4	
7756.59	0.99	2.58	2-3	
7759.25	1.01	2.60	1-2	
7899.63	0.99	2.55	2-4	
7859.60	1.01	2.58	1-3	
6760.61	0.86	2.68	5-5	a^5F-a^3G
6836.94	0.91	2.72	4-4	(15F)
6884.50	0.95	2.75	3-3	
6633.48	0.86	2.72	5-4	
6721.89	0.91	2.75	4-3	
6972.07	0.91	2.68	4-5	
7005.23	0.95	2.72	3-4	
7008.89	0.99	2.75	2-3	
6525.11	0.86	2.75	5-3	
7147.16	0.95	2.68	3-5	
7134.08	0.99	2.72	2-4	
7092.89	1.01	2.75	1-3	
6616.18	0.95	2.82	3-2	a^5F-b^3P
6682.18	0.99	2.83	2-1	(16F)
6710.88	1.01	2.85	1-0	
6730.99	0.99	2.82	2-2	
6758.48	1.01	2.83	1-1	
6808.42	1.01	2.82	1-2	
5931.19	0.86	2.94	5-5	a^5F-b^3G
5971.33	0.91	2.98	4-4	(17F)
6018.54	0.95	3.00	3-3	
5815.53	0.86	2.98	5-4	
5893.89	0.91	3.00	4-3	
6093.32	0.91	2.94	4-5	
6099.31	0.95	2.98	3-4	
6113.40	0.99	3.00	2-3	
5742.07	0.86	3.00	5-3	
6228.64	0.95	2.94	3-5	
6196.75	0.99	2.98	2-4	
6177.21	1.01	3.00	1-3	
6019.63	0.95	3.00	3-2	a^5F-c^3P
5955.61	0.99	3.06	2-1	(18F)
5902.64	1.01	3.10	1-0	
8114.52	0.99	3.00	2-2	
6016.15	1.01	3.06	1-1	
8178.35	1.01	3.00	1-2	
5212.95	0.86	3.22	5-8	a^5F-b^3H
5268.82	0.91	3.25	4-5	(19F)
5289.68	0.95	3.29	3-4	
5147.18	0.86	3.25	5-5	
5193.13	0.91	3.29	4-4	
5074.90	0.86	3.29	5-4	
5180.78	0.86	3.24	5-3	a^5F-a^3D
5194.19	0.91	3.29	4-2	(20F)
5352.29	0.95	3.26	3-1	
5304.06	0.91	3.24	4-3	
5290.75	0.95	3.29	3-2	
5427.17	0.99	3.28	2-1	
5404.80	0.95	3.24	3-3	
5363.91	0.99	3.29	2-2	
5477.40	1.01	3.26	1-1	
5481.17	0.99	3.24	2-3	
5412.97	1.01	3.29	1-2	
5532.41	1.01	3.24	1-3	
4454.37	0.88	3.83	5-3	a^5F-b^3D
4548.32	0.91	3.82	4-2	(21F)
4630.06	0.95	3.62	3-1	
4545.20	0.91	3.83	4-3	
4622.19	0.95	3.62	3-2	
4685.99	0.99	3.82	2-1	
4618.97	0.95	3.63	3-3	
4677.94	0.99	3.82	2-2	
4723.39	1.01	3.82	1-1	
4674.64	0.99	3.63	2-3	
4715.21	1.01	3.62	1-2	
4711.86	1.01	3.63	1-3	
11537.62	1.48	2.55	4-4	a^3F-b^3F
12025.23	1.55	2.58	3-3	(22F)
12387.48	1.60	2.60	2-2	
11233.80	1.48	2.58	4-3	
11791.90	1.55	2.60	3-2	
12372.55	1.55	2.55	3-4	
12845.23	1.60	2.58	2-3	

Fe I continued

I A	E P Low	E P High	J	Multiplet (No)
10364.65	1.48	2.68	4-5	a^3F-a^3G
10592.32	1.55	2.72	3-4	(23F)
10771.88	1.60	2.75	2-3	
9974.41	1.48	2.72	4-4	
10318.68	1.55	2.75	3-3	
9731.40	1.48	2.75	4-3	
8466.95	1.48	2.94	4-5	a^3F-b^3G
8649.72	1.55	2.98	3-4	(24F)
8792.49	1.60	3.00	2-3	
8233.22	1.48	2.98	4-4	
8488.19	1.55	3.00	3-3	
8086.73	1.48	3.00	4-3	
8490.34	1.55	3.00	3-2	a^3F-c^3P
8469.75	1.60	3.06	2-1	(25F)
8794.80	1.60	3.00	2-2	
7935.32	1.48	3.03	4-4	a^3F-a^1G
8321.51	1.55	3.03	3-4	(26F)
6954.69	1.48	3.25	4-5	a^3F-b^3H
7107.04	1.55	3.29	3-4	(27F)
6823.42	1.48	3.29	4-4	
7018.21	1.48	3.24	4-3	a^3F-a^3D
7109.01	1.55	3.29	3-2	(28F)
7439.58	1.60	3.26	2-1	
7316.44	1.55	3.24	3-3	
7321.23	1.60	3.29	2-2	
7541.42	1.60	3.24	2-3	
6231.27	1.55	3.53	3-2	a^3F-a^1D
6393.72	1.60	3.53	2-2	(29F)
5746.99	1.48	3.63	4-3	a^3F-b^3D
5952.21	1.55	3.62	3-2	(30F)
6113.97	1.60	3.62	2-1	
5946.87	1.55	3.63	3-3	
6100.26	1.60	3.62	2-2	
6094.65	1.60	3.63	2-3	
5609.27	1.48	3.68	4-4	a^3F-b^1G
5799.53	1.55	3.68	3-4	(31F)
11524.46	2.17	3.24	3-3	a^5P-a^3D
11237.04	2.19	3.29	2-2	(32F)
11790.50	2.21	3.26	1-1	
11018.07	2.17	3.29	3-2	
11518.28	2.19	3.26	2-1	
11764.23	2.19	3.24	2-3	
11495.96	2.21	3.29	1-2	
8456.74	2.17	3.63	3-3	a^5P-b^3D
8596.27	2.19	3.62	2-2	(33F)
8775.19	2.21	3.62	1-1	
8467.54	2.17	3.62	3-2	
8623.51	2.19	3.62	2-1	
8585.14	2.19	3.63	2-3	
8746.99	2.21	3.62	1-2	
10908.34	2.27	3.40	2-1	a^3P-a^1P (34F)
9775.94	2.27	3.53	2-2	a^3P-a^1D
11044.11	2.41	3.53	1-2	(35F)
9093.67	2.27	3.83	2-3	a^3P-b^3D
10196.82	2.41	3.62	1-2	(36F)
10770.38	2.47	3.62	0-1	
9106.17	2.27	3.62	2-2	
10235.17	2.41	3.62	1-1	
9136.73	2.27	3.62	2-1	
10601.80	2.39	3.56	6-5	a^3H-a^1H
10887.84	2.42	3.58	5-5	(37F)
11069.08	2.44	3.56	4-5	
10075.00	2.39	3.62	6-8	a^3H-a^1I
10314.96	2.42	3.62	5-8	(38F)
9822.50	2.42	3.68	5-4	a^3H-b^1G
9986.60	2.44	3.68	4-4	(39F)
11450.86	2.55	3.63	4-3	b^3F-b^3D
11786.08	2.58	3.82	3-2	(40F)
12072.48	2.80	3.82	2-1	
11765.16	2.58	3.83	3-3	
12019.17	2.60	3.82	2-2	
11997.42	2.60	3.63	2-3	
10918.84	2.55	3.68	4-4	b^3F-b^1G
11202.11	2.58	3.68	3-4	(41F)

FORBIDDEN LINES

Fe II I P 18.16

I A	E P Low	E P High	J	Multiplet (No)
7419.42	0.00	1.86	4½-3½	a^8D-a^4P (1F)
7523.27	0.05	1.89	3½-1½	
7552.38	0.08	1.72	3½- ½	
7637.52	0.05	1.66	3½-2½	
7686.90	0.08	1.69	3½-1½	
7685.29	0.11	1.72	1½- ½	
7806.22	0.08	1.66	2½-2½	
7803.90	0.11	1.69	1½-1½	
7733.12	0.12	1.72	½- ½	
7928.90	0.11	1.66	1½-2½	
7874.23	0.12	1.69	½-1½	
7999.47	0.12	1.68	½-2½	
5650.39	0.08	2.27	3½-1½	a^6D-a^2P (2F)
5546.59	0.11	2.33	1½- ½	
5713.35	0.11	2.27	1½-1½	
5582.01	0.12	2.33	½- ½	
5750.95	0.12	2.27	½-1½	
4965.78	0.05	2.53	3½-2½	a^6D-a^2D (3F)
4843.51	0.08	2.63	2½-1½	
5038.55	0.08	2.53	2½-2½	
4889.70	0.11	2.63	1½-1½	
5088.52	0.11	2.53	1½-2½	
4917.22	0.12	2.83	½-1½	
4799.31	0.00	2.57	4½-2½	a^8D-b^4P (4F)
4865.65	0.05	2.69	3½-1½	
4598.07	0.08	2.77	2½- ½	
4889.63	0.05	2.57	3½-2½	
4728.07	0.08	2.69	2½-1½	
4639.68	0.11	2.77	1½- ½	
4958.23	0.08	2.57	2½-2½	
4772.07	0.11	2.69	1½-1½	
4664.45	0.12	2.77	½- ½	
5006.65	0.11	2.57	1½-2½	
4798.28	0.12	2.69	½-1½	
5035.50	0.12	2.57	½-2½	
4664.97	0.00	2.85	4½-5½	a^6D-a^4H (5F)
4716.36	0.05	2.66	3½-4½	
4750.57	0.08	2.68	2½-3½	
4632.27	0.00	2.66	4½-4½	
4687.56	0.05	2.68	3½-3½	
4604.48	0.00	2.68	4½-3½	
4416.27	0.00	2.79	4½-4½	a^6D-b^4F (6F)
4457.95	0.05	2.82	3½-3½	
4488.75	0.08	2.83	2½-2½	
4509.61	0.11	2.84	1½-1½	
4382.75	0.00	2.82	4½-3½	
4432.45	0.05	2.83	3½-2½	
4470.29	0.08	2.84	2½-1½	
4492.84	0.05	2.79	3½-4½	
4514.90	0.08	2.82	2½-3½	
4528.39	0.11	2.83	1½-2½	
4533.00	0.12	2.84	½-1½	
4358.10	0.00	2.83	4½-2½	
4414.45	0.05	2.84	3½-1½	
4550.48	0.08	2.79	2½-4½	
4555.01	0.11	2.82	1½-3½	
4551.98	0.12	2.83	½-2½	
4287.40	0.00	2.88	4½-2½	a^6D-a^8S (7F)
4359.34	0.05	2.88	3½-2½	
4413.78	0.08	2.88	2½-2½	
4452.11	0.11	2.88	1½-2½	
4474.91	0.12	2.88	½-2½	
3931.44	0.00	3.14	4½-5½	a^6D-a^4G (8F)
3932.72	0.05	3.19	3½-4½	
3949.27	0.08	3.21	2½-3½	
3968.27	0.11	3.22	1½-2½	
3874.07	0.00	3.19	4½-4½	
3905.82	0.05	3.21	3½-3½	
3937.80	0.08	3.22	2½-2½	
3847.78	0.00	3.21	4½-3½	
3894.40	0.05	3.22	3½-2½	
3836.89	0.00	3.22	4½-2½	
3991.84	0.05	3.14	3½-5½	
3978.97	0.08	3.19	2½-4½	
3979.93	0.11	3.21	1½-3½	
3986.38	0.12	3.22	½-2½	
3979.78	0.08	3.18	2½-1½	a^6D-b^2P (9F)
3834.73	0.11	3.32	1½- ½	
4010.91	0.11	3.18	1½-1½	
3851.83	0.12	3.32	½- ½	
4029.41	0.12	3.18	½-1½	
3659.98	0.00	3.37	4½-3½	a^6D-a^2F (10F)
3670.62	0.05	3.41	3½-2½	
3712.28	0.05	3.37	3½-3½	
3709.14	0.08	3.41	2½-2½	
3751.66	0.08	3.37	2½-3½	
3736.17	0.11	3.41	1½-2½	
3175.38	0.00	3.89	4½-3½	a^6D-b^4D (11F)
3224.54	0.05	3.87	3½-2½	
3256.73	0.08	3.87	2½-1½	
3277.12	0.11	3.87	1½- ½	
3185.01	0.00	3.87	4½-2½	
3228.99	0.05	3.87	3½-1½	
3256.31	0.08	3.87	2½- ½	
3214.87	0.05	3.89	3½-3½	
3254.24	0.08	3.87	2½-2½	
3277.55	0.11	3.87	1½-1½	
3289.46	0.12	3.87	½- ½	
3244.18	0.08	3.89	2½-3½	
3275.02	0.11	3.87	1½-2½	
3289.89	0.12	3.87	½-1½	
3264.84	0.11	3.89	1½-3½	
3287.35	0.12	3.87	½-2½	

Fe II continued

I A	E P Low	E P High	J	Multiplet (No)
3124.18	0.00	3.95	4½-3½	a^6D-b^2F (12F)
3181.05	0.05	3.93	3½-2½	
3182.21	0.05	3.95	3½-3½	
3209.94	0.08	3.93	2½-2½	
3190.76	0.08	3.95	2½-3½	
3230.17	0.11	3.93	1½-2½	
8616.96	0.23	1.66	4½-2½	a^4F-a^4P (13F)
8891.88	0.30	1.89	3½-1½	
9033.45	0.35	1.72	2½- ½	
9051.92	0.30	1.88	3½-2½	
9226.60	0.35	1.89	2½-1½	
9267.54	0.38	1.72	1½- ½	
9399.02	0.35	1.86	2½-2½	
9470.93	0.38	1.69	1½-1½	
9852.70	0.38	1.66	1½-2½	
7155.14	0.23	1.98	4½-4½	a^4F-a^2G (14F)
7171.98	0.30	2.02	3½-3½	
6898.18	0.23	2.02	4½-3½	
7452.50	0.30	1.98	3½-4½	
7388.16	0.35	2.02	2½-3½	
7686.19	0.35	1.98	2½-4½	
7544.00	0.38	2.02	1½-3½	
6440.40	0.35	2.27	2½-1½	a^4F-a^2P (15F)
6339.70	0.38	2.33	1½- ½	
6558.51	0.38	2.27	1½-1½	
5413.34	0.23	2.51	4½-5½	a^4F-a^2H (16F)
5440.45	0.30	2.57	3½-4½	
5280.25	0.23	2.57	4½-4½	
5362.06	0.23	2.53	4½-3½	a^4F-a^2D (17F)
5295.70	0.30	2.63	3½-1½	
5527.33	0.30	2.53	3½-2½	
5412.64	0.35	2.83	2½-1½	
5654.85	0.35	2.53	2½-2½	
5495.82	0.38	2.83	1½-1½	
5745.70	0.38	2.53	1½-2½	
5273.38	0.23	2.57	4½-3½	a^4F-b^4P (18F)
5158.00	0.30	2.89	3½-1½	
5107.95	0.35	2.77	2½- ½	
5433.15	0.30	2.57	3½-2½	
5268.68	0.35	2.69	2½-1½	
5181.97	0.38	2.77	1½- ½	
5556.31	0.35	2.57	2½-2½	
5347.67	0.38	2.89	1½-1½	
5644.00	0.38	2.57	1½-2½	
5158.81	0.23	2.82	4½-6½	a^4F-a^4H (19F)
5281.81	0.30	2.85	3½-5½	
5333.65	0.35	2.88	2½-4½	
5378.47	0.38	2.88	1½-3½	
5111.83	0.23	2.65	4½-5½	
5220.06	0.30	2.88	3½-4½	
5298.84	0.35	2.68	2½-3½	
5072.40	0.23	2.88	4½-4½	
5184.80	0.30	2.68	3½-3½	
5039.10	0.23	2.68	4½-3½	
4814.55	0.23	2.79	4½-4½	a^4F-b^4F (20F)
4905.35	0.30	2.82	3½-3½	
4973.39	0.35	2.83	2½-2½	
5020.24	0.38	2.84	1½-1½	
4774.74	0.23	2.82	4½-3½	
4874.49	0.30	2.83	3½-2½	
4950.74	0.35	2.84	2½-1½	
4947.38	0.30	2.79	3½-4½	
5005.52	0.35	2.82	2½-3½	
5043.53	0.38	2.83	1½-2½	
4745.49	0.23	2.83	4½-2½	
4852.73	0.30	2.84	3½-1½	
5049.29	0.35	2.79	2½-4½	
5078.57	0.38	2.82	1½-3½	
4243.98	0.23	3.14	4½-5½	a^4F-a^4G (21F)
4276.83	0.30	3.19	3½-4½	
4319.62	0.35	3.21	2½-3½	
4358.37	0.38	3.22	1½-2½	
4177.21	0.23	3.19	4½-4½	
4244.81	0.30	3.21	3½-3½	
4305.90	0.35	3.22	2½-2½	
4146.65	0.23	3.21	4½-3½	
4231.56	0.30	3.22	3½-2½	
4134.01	0.23	3.22	4½-2½	
4346.85	0.30	3.14	3½-5½	
4352.78	0.35	3.19	2½-4½	
4372.43	0.38	3.21	1½-3½	
4358.14	0.35	3.18	2½-1½	a^4F-b^2P (22F)
4197.81	0.38	3.32	1½- ½	
4409.88	0.38	3.18	1½-1½	
4114.48	0.23	3.23	4½-5½	a^4F-b^2H (23F)
4178.95	0.30	3.25	3½-4½	
4083.78	0.23	3.25	4½-4½	
3929.35	0.23	3.37	4½-3½	a^4F-a^2F (24F)
3968.66	0.30	3.41	3½-2½	
3882.73	0.23	3.41	4½-2½	
4017.38	0.30	3.37	3½-3½	
4033.98	0.35	3.41	2½-2½	
4084.32	0.35	3.37	2½-3½	
4080.00	0.38	3.41	1½-2½	
4131.51	0.38	3.37	1½-3½	
3505.81	0.23	3.75	4½-4½	a^4F-b^2G (25F)
3528.28	0.30	3.80	3½-3½	
3460.20	0.23	3.80	4½-3½	
3575.72	0.30	3.75	3½-4½	
3579.81	0.35	3.80	2½-3½	
3628.65	0.35	3.75	2½-4½	
3616.00	0.38	3.80	1½-3½	

Fe II continued

I A	E P Low	E P High	J	Multiplet (No)
3376.20	0.23	3.89	4½-3½	a^4F-b^4D (26F)
3452.30	0.30	3.87	3½-2½	
3504.51	0.35	3.87	2½-1½	
3538.69	0.38	3.87	1½- ½	
3387.10	0.23	3.87	4½-2½	
3455.11	0.30	3.87	3½-1½	
3504.02	0.35	3.87	2½- ½	
3440.99	0.30	3.89	3½-3½	
3501.62	0.35	3.87	2½-2½	
3539.19	0.38	3.87	1½-1½	
3489.98	0.35	3.89	2½-3½	
3536.25	0.38	3.87	1½-2½	
3524.38	0.38	3.89	1½-3½	
3318.38	0.23	3.95	4½-3½	a^4F-b^2F (27F)
3402.50	0.30	3.93	3½-2½	
3339.14	0.23	3.93	4½-2½	
3380.95	0.30	3.95	3½-3½	
3450.39	0.35	3.93	2½-2½	
3428.24	0.35	3.95	2½-3½	
3484.01	0.38	3.93	1½-2½	
3461.42	0.38	3.95	1½-3½	
10028.82	1.04	2.27	2½-1½	a^4D-a^2P (28F)
9795.21	1.07	2.33	1½- ½	
10327.56	1.07	2.27	1½-1½	
9957.44	1.09	2.33	½- ½	
10508.07	1.09	2.27	½-1½	
7958.50	0.98	2.53	3½-2½	a^4D-a^2D (29F)
7740.11	1.04	2.63	2½-1½	
8245.12	1.04	2.53	2½-2½	
7916.98	1.07	2.63	1½-1½	
8446.11	1.07	2.53	1½-2½	
8022.63	1.09	2.63	½-1½	
7764.69	0.98	2.57	3½-2½	a^4D-b^4P (30F)
7449.45	1.04	2.89	2½-1½	
7281.87	1.07	2.77	1½- ½	
7214.69	0.98	2.69	3½-1½	
7131.77	1.04	2.77	2½- ½	
8037.29	1.04	2.57	2½-2½	
7613.15	1.07	2.89	1½-1½	
7370.94	1.09	2.77	½- ½	
8228.16	1.07	2.57	1½-2½	
7710.79	1.09	2.69	½-1½	
8342.34	1.09	2.57	½-2½	
6809.21	0.98	2.79	3½-4½	a^4D-b^4F (31F)
6933.87	1.04	2.82	2½-3½	
7011.24	1.07	2.83	1½-2½	
7047.99	1.09	2.84	½-1½	
8729.85	0.98	2.82	3½-3½	
6872.17	1.04	2.83	2½-2½	
8986.32	1.07	2.84	1½-1½	
8671.90	0.98	2.83	3½-2½	
6829.01	1.04	2.84	2½-1½	
7017.94	1.04	2.79	2½-4½	
7075.26	1.07	2.82	1½-3½	
7093.98	1.09	2.83	½-2½	
6631.20	0.98	2.84	3½-1½	
6507.62	0.98	2.88	3½-2½	a^4D-a^6S (32F)
6698.02	1.04	2.88	2½-2½	
6830.06	1.07	2.88	1½-2½	
5721.35	0.98	3.14	3½-5½	a^4D-a^4G (33F)
5741.11	1.04	3.19	2½-4½	
5778.35	1.07	3.21	1½-3½	
5809.43	1.09	3.22	½-2½	
5600.66	0.98	3.19	3½-4½	
5883.56	1.04	3.21	2½-3½	
5753.83	1.07	3.22	1½-2½	
5545.68	0.98	3.21	3½-3½	
5659.83	1.04	3.22	2½-2½	
5523.28	0.98	3.22	3½-2½	
5746.96	1.04	3.18	2½-1½	a^4D-b^2P (34F)
5477.25	1.07	3.32	1½- ½	
5843.90	1.07	3.18	1½-1½	
5527.61	1.09	3.32	½- ½	
5901.26	1.09	3.18	½-1½	
5183.94	0.98	3.37	3½-3½	a^4D-a^2F (35F)
5199.18	1.04	3.41	2½-2½	
5083.72	0.98	3.41	3½-2½	
5283.11	1.04	3.37	2½-3½	
5278.39	1.07	3.41	1½-2½	
4249.07	0.98	3.89	3½-3½	a^4D-b^4D (36F)
4347.35	1.04	3.87	2½-2½	
4407.16	1.07	3.87	1½-1½	
4438.92	1.09	3.87	½- ½	
4266.34	0.98	3.87	3½-2½	
4351.80	1.04	3.87	2½-1½	
4406.39	1.07	3.87	1½- ½	
4329.43	1.04	3.89	2½-3½	
4402.60	1.07	3.87	1½-2½	
4439.73	1.09	3.87	½-1½	
4270.62	0.98	3.87	3½-1½	
4351.05	1.04	3.87	2½- ½	
4384.21	1.07	3.89	1½-3½	
4435.08	1.09	3.87	½-2½	
4157.89	0.98	3.95	3½-3½	a^4D-b^2F (37F)
4268.67	1.04	3.93	2½-2½	
4190.53	0.98	3.93	3½-2½	
4234.81	1.04	3.95	2½-3½	
4231.93	1.07	3.93	1½-2½	
8119.16	1.66	3.18	2½-1½	a^4P-b^2P (38F)
7539.67	1.69	3.32	1½- ½	
8252.38	1.89	3.18	1½-1½	
7673.74	1.72	3.32	½- ½	
8413.28	1.72	3.18	½-1½	

FORBIDDEN LINES

I A	E P Low	E P High	J	Multiplet (No)
Fe II continued				
5551.31	1.66	3.89	2½-3½	a^4P-b^4D (39F)
5643.44	1.69	3.87	1½-2½	
5725.92	1.72	3.87	½-1½	
5580.82	1.66	3.87	2½-2½	
5650.94	1.69	3.87	1½-1½	
5724.62	1.72	3.87	½- ½	
5588.15	1.66	3.87	2½-1½	
5649.67	1.69	3.87	1½- ½	
10431.10	1.96	3.14	4½-5½	a^2G-a^4G (40F)
10594.89	2.02	3.19	3½-4½	
10036.79	1.96	3.19	4½-4½	
10400.53	2.02	3.21	3½-3½	
9862.21	1.96	3.21	4½-3½	
10321.34	2.02	3.22	3½-2½	
9682.13	1.96	3.23	4½-5½	a^2G-b^2H (41F)
10013.68	2.02	3.25	3½-4½	
9513.87	1.96	3.25	4½-4½	
8715.84	1.96	3.37	4½-3½	a^2G-a^2F (42F)
8885.66	2.02	3.41	3½-2½	
9133.63	2.02	3.37	3½-3½	
8873.87	1.96	3.75	4½-4½	a^2G-b^2G (43F)
6944.91	2.02	3.80	3½-3½	
6700.68	1.96	3.80	4½-3½	
7131.13	2.02	3.75	3½-4½	
6188.55	1.96	3.95	4½-3½	a^2G-b^2F (44F)
6473.86	2.02	3.93	3½-2½	
6396.30	2.02	3.95	3½-3½	
10796.48	2.27	3.41	1½-2½	a^2P-a^2F (45F)
7674.06	2.27	3.87	1½-2½	a^2P-b^4D (46F)
8012.08	2.33	3.87	½-1½	
7687.94	2.27	3.87	1½-1½	
8009.53	2.33	3.87	½- ½	
7685.58	2.27	3.87	1½- ½	
7432.23	2.27	3.93	1½-2½	a^2P-b^2F (47F)
9949.32	2.51	3.75	5½-4½	a^2H-b^2G (48F)
10038.79	2.57	3.80	4½-3½	
10432.60	2.57	3.75	4½-4½	
8931.47	2.57	3.95	4½-3½	a^2H-b^2F (49F)
9755.81	2.53	3.80	2½-3½	a^2D-b^2G (50F)
9116.41	2.53	3.89	2½-3½	a^2D-b^4D (51F)
9918.01	2.63	3.87	1½-2½	
9196.26	2.53	3.87	2½-2½	
9941.20	2.63	3.87	1½-1½	
9216.20	2.53	3.87	2½-1½	
9937.27	2.63	3.87	1½- ½	
8706.79	2.53	3.95	2½-3½	a^2D-b^2F (52F)
9517.76	2.63	3.93	1½-3½	
8851.13	2.53	3.93	2½-2½	
Fe III I P 30.48				
5151.9	0.00	2.40	4-2	a^5D-a^3P (1F)
4936.4	0.05	2.55	3-1	
4883.9	0.09	2.62	2-0	
5270.4	0.05	2.40	3-2	
5011.3	0.09	2.55	2-1	
4930.5	0.12	2.62	1-0	
5355.9	0.09	2.40	2-2	
5060.3	0.12	2.55	1-1	
5412.0	0.12	2.40	1-2	
5084.8	0.13	2.55	0-1	
5439.9	0.13	2.40	0-2	
4985.9	0.00	2.48	4-6	a^5D-a^3H (2F)
5032.7	0.05	2.51	3-5	
5063.7	0.09	2.53	2-4	
4924.5	0.00	2.51	4-5	
4987.2	0.05	2.53	3-4	
4881.0	0.00	2.53	4-4	
4658.1	0.00	2.65	4-4	a^5D-a^3F (3F)
4701.5	0.05	2.68	3-3	
4733.9	0.09	2.70	2-2	
4607.0	0.00	2.68	4-3	
4667.0	0.05	2.70	3-2	
4754.7	0.05	2.65	3-4	
4769.4	0.09	2.68	2-3	
4777.7	0.12	2.70	1-2	
4573.9	0.00	2.70	4-2	
4824.1	0.09	2.65	2-4	
4813.9	0.12	2.68	1-3	
4799.5	0.13	2.70	0-2	
4070.7	0.00	3.03	4-5	a^5D-a^3G (4F)
4072.7	0.05	3.08	3-4	
4098.6	0.09	3.10	2-3	
4008.3	0.00	3.08	4-4	
4046.4	0.05	3.10	3-3	
Fe III continued				
3976.2	0.00	3.10	4-3	a^5D-a^3G (4F)
4144.3	0.05	3.03	3-5	
4130.7	0.09	3.08	2-4	
4129.4	0.12	3.10	1-3	cont
3322.54	0.00	3.71	4-3	a^5D-a^7S (5F)
3371.4	0.05	3.71	3-3	
3406.2	0.09	3.71	2-3	
3428.8	0.12	3.71	1-3	
3239.7	0.00	3.81	4-3	a^5D-a^3D (6F)
3301.6	0.05	3.79	3-2	
3333.8	0.09	3.79	2-1	
3254.7	0.00	3.79	4-2	
3300.5	0.05	3.79	3-1	
3286.2	0.05	3.81	3-3	
3334.9	0.09	3.79	2-2	
3355.5	0.12	3.79	1-1	
3319.2	0.09	3.81	2-3	
3356.6	0.12	3.79	1-2	
3366.2	0.13	3.79	0-1	
3340.7	0.12	3.81	1-3	
3367.3	0.13	3.79	0-2	
3236.7	0.00	3.81	4-4	a^5D-a^1G (7F)
3283.1	0.05	3.81	3-4	
3316.1	0.09	3.81	2-4	
8728.9	2.40	3.81	2-3	a^3P-a^3D (8F)
9969.6	2.55	3.79	1-2	
10504.3	2.62	3.79	0-1	
8838.2	2.40	3.79	2-2	
9960.0	2.55	3.79	1-1	
8830.7	2.40	3.79	2-1	
7078.2	2.55	4.30	1-0	a^3P-a^1S (9F)
6096.3	2.40	4.42	2-2	a^3P-a^1D (10F)
6614.0	2.55	4.42	1-2	
9701.3	2.48	3.75	6-6	a^3H-a^1I (11F)
9942.2	2.51	3.75	5-6	
9444.2	2.51	3.81	5-4	a^3H-a^1G (12F)
9608.6	2.53	3.81	4-4	
10640.4	2.65	3.81	4-3	a^3F-a^3D (13F)
11088.0	2.68	3.79	3-2	
11272.6	2.70	3.79	2-1	
10916.5	2.68	3.81	3-3	
11284.9	2.70	3.79	2-2	
11107.3	2.70	3.81	2-3	
10608.1	2.65	3.81	4-4	a^3F-a^1G (14F)
10682.6	2.68	3.81	3-4	
7088.3	2.68	4.42	3-2	a^3F-a^1D (15F)
7220.0	2.70	4.42	2-2	
Fe V I P ?				
3970.1	0.16	3.27	4-2	$3d^4\ ^5D-3d^4\ ^3P$ (1F)
4136.4	0.10	3.08	3-1	
4229.8	0.05	2.97	2-0	
3895.7	0.10	3.27	3-2	
4071.5	0.05	3.08	2-1	
4181.3	0.02	2.97	1-0	
3838.1	0.05	3.27	2-2	
4026.6	0.02	3.08	1-1	
3798.2	0.02	3.27	1-2	
4003.2	0.00	3.08	0-1	
3777.4	0.00	3.27	0-2	
4123.9	0.16	3.15	4-6	$3d^4\ ^5D-3d^4\ ^3H$ (2F)
4093.0	0.10	3.11	3-5	
4077.5	0.05	3.08	2-4	
4175.2	0.16	3.11	4-5	
4142.5	0.10	3.08	3-4	
4236.8	0.16	3.08	4-4	
3891.8	0.16	3.33	4-4	$3d^4\ ^5D-3d^4\ ^3F$ (3F)
3838.9	0.10	3.31	3-3	
3794.6	0.05	3.30	2-2	
3911.1	0.16	3.31	4-3	
3850.8	0.10	3.30	3-2	
3820.2	0.10	3.33	3-4	
3782.9	0.05	3.31	2-3	
3755.5	0.02	3.30	1-2	
3923.5	0.16	3.30	4-2	
3764.8	0.05	3.33	2-4	
3744.1	0.02	3.31	1-3	
3735.2	0.00	3.30	0-2	
3430.3	0.16	3.76	4-5	$3d^4\ ^5D-3d^4\ ^3G$ (4F)
3406.6	0.10	3.72	3-4	
3400.3	0.05	3.68	2-3	
3463.4	0.16	3.72	4-4	
3445.4	0.10	3.68	3-3	
3374.6	0.10	3.76	3-5	
3362.5	0.05	3.72	2-4	
3368.9	0.02	3.68	1-3	
3503.5	0.16	3.68	4-3	
Fe VI I P ?				
5678.0	0.25	2.42	4½-2½	$3d^3\ ^4F-3d^3\ ^4P$ (1F)
5631.6	0.15	2.34	3½-1½	
5485.7	0.06	2.31	2½- ½	
5428.6	0.15	2.42	3½-2½	
5425.3	0.06	2.34	2½-1½	
5336.4	0.00	2.31	1½- ½	
5236.6	0.06	2.42	2½-2½	
5279.2	0.00	2.34	1½-1½	
5100.4	0.00	2.42	1½-2½	
5177.0	0.25	2.63	4½-4½	$3d^3\ ^4F-3d^3\ ^2G$ (2F)
5146.8	0.15	2.54	3½-3½	
5370.5	0.25	2.54	4½-3½	
4968.8	0.15	2.63	3½-4½	
4974.0	0.06	2.54	2½-3½	
4807.5	0.06	2.63	2½-4½	
4850.9	0.00	2.54	1½-3½	
3995.8	0.15	3.23	3½-1½	$3d^3\ ^4F-3d^3\ ^2P$ (3F)
3849.1	0.06	3.27	2½- ½	
3890.9	0.06	3.23	2½-1½	
3774.9	0.00	3.27	1½- ½	
3815.1	0.00	3.23	1½-1½	
3776.1	0.25	3.51	4½-2½	$3d^3\ ^4F-3d^3\ ^2D$ (4F)
3645.7	0.15	3.53	3½-1½	
3664.1	0.15	3.51	3½-2½	
3558.1	0.06	3.53	2½-1½	
3575.6	0.06	3.51	2½-2½	
3494.7	0.00	3.53	1½-1½	
3511.6	0.00	3.51	1½-2½	
3675.2	0.25	3.60	4½-5½	$3d^3\ ^4F-3d^3\ ^2H$ (5F)
3630.3	0.15	3.55	3½-4½	
3740.2	0.25	3.55	4½-4½	
3569.0	0.15	3.60	3½-5½	
3543.5	0.06	3.55	2½-4½	
Fe VII I P ?				
6599.7	0.29	2.16	4-2	$3d^2\ ^3F-3d^2\ ^1D$ (1F)
6085.5	0.13	2.16	3-2	
5720.9	0.00	2.16	2-2	
5276.1	0.29	2.63	4-2	$3d^2\ ^3F-3d^2\ ^3P$ (2F)
5158.3	0.13	2.52	3-1	
4989.4	0.00	2.47	2-0	
4942.3	0.13	2.63	3-2	
4893.9	0.00	2.52	2-1	
4699.0	0.00	2.63	2-2	
3759.9	0.29	3.57	4-4	$3d^2\ ^3F-3d^2\ ^1G$ (3F)
3587.2	0.13	3.57	3-4	
3457.3	0.00	3.57	2-4	
8738.1	2.16	3.57	2-4	$3d^2\ ^1D-3d^2\ ^1G$ (4F)
Fe X I P 261?				
6372.9 C) 6374.51 C)	0.00	1.94	1½- ½	$3p^5\ ^2P^o-3p^5\ ^2P^o$ (1F)
Fe XI I P 289?				
7888.6 C) 7891.94 C)	0.00	1.56	2-1	$3p^4\ ^3P-3p^4\ ^3P$? (1F)
3986.1	1.56	4.66	1-2	$3p^4\ ^3P-3p^4\ ^1D$? (2F)
Fe XIII I P 355?				
10796.2 C) 10797.95 C)	1.15	2.29	1-2	$3p^2\ ^3P-3p^2\ ^3P$ (1F)
10749.7 C) 10746.80 C)	0.00	1.15	0-1	
3387.7	2.29	5.93	2-2	$3p^2\ ^3P-3p^2\ ^1D$ (2F)
Fe XIV I P 390?				
5303.6 C) 5302.86 C)	0.00	2.33	½-1½	$3p^2P^o-3p^2P^o$ (1F)
Fe XV I P 454?				
7080.2 C) 7059.62 C)	(29.8	31.6)	1-2	$3p^3P^o-3p^3P^o$ (1F)

FORBIDDEN LINES

I A	E P Low	E P High	J	Multiplet (No)
Co II I P 17.1				
10188.1	0.00	1.21	4-4	$3d^8\ ^3F-4s^3F$ (1F)
10345.4	0.12	1.32	3-3	
10280.7	0.20	1.40	2-2	
9336.2	0.00	1.32	4-3	
9639.4	0.12	1.40	3-2	
11280.5	0.12	1.21	3-4	
10972.9	0.20	1.32	2-3	
8830.3	0.00	1.40	4-2	
12168.8	0.20	1.21	2-4	
5825.4	0.00	2.19	4-3	$3d^8\ ^3F-4s^5P$ (2F)
5852.8	0.12	2.33	3-2	
5971.6	0.20	2.26	2-1	
5943.2	0.12	2.19	3-3	
6083.2	0.20	2.33	2-2	
6180.9	0.20	2.19	2-3	
7274.6	0.50	2.19	4-3	$4s^5F-4s^5P$ (3F)
7421.5	0.56	2.23	3-2	
7467.0	0.61	2.26	2-1	
7567.6	0.56	2.19	3-3	
7642.3	0.61	2.23	2-2	
7611.7	0.64	2.26	1-1	
7797.2	0.61	2.19	2-3	
7793.9	0.64	2.23	1-2	
Co VI I P ?				
3481.5	0.22	3.77	4-2	$3d^4\ ^5D-3d^4\ ^3P$ (1F)
3658.1	0.14	3.51	3-1	
3761.0	0.07	3.35	2-0	
3403.3	0.14	3.77	3-2	
3586.8	0.07	3.51	2-1	
3708.3	0.03	3.35	1-0	
3341.5	0.07	3.77	2-2	
3538.8	0.03	3.51	1-1	
3299.8	0.03	3.77	1-2	
3512.9	0.00	3.51	0-1	
3277.3	0.00	3.77	0-2	
3444.1	0.22	3.80	4-4	$3d^4\ ^5D-3d^4\ ^3F$ (2F)
3388.2	0.14	3.78	3-3	
3336.9	0.07	3.77	2-2	
3465.7	0.22	3.78	4-3	
3398.5	0.14	3.77	3-2	
3367.5	0.14	3.80	3-4	
3326.9	0.07	3.78	2-3	
3295.4	0.03	3.77	1-2	
3476.5	0.22	3.77	4-2	
3307.0	0.07	3.80	2-4	
3285.6	0.03	3.78	1-3	
3272.9	0.00	3.77	0-2	
Co VII I P ?				
5136.3	0.34	2.74	4½-3½	$3d^3\ ^4F-3d^3\ ^4P$ (1F)
5076.3	0.20	2.63	3½-1½	
4901.1	0.09	2.60	2½- ½	
4858.4	0.20	2.74	3½-2½	
4851.6	0.09	2.63	2½-1½	
4738.9	0.00	2.60	1½- ½	
4652.2	0.09	2.74	2½-2½	
4693.6	0.00	2.63	1½-1½	
4505.9	0.00	2.74	1½-2½	
4475.0	0.34	3.09	4½-4½	$3d^3\ ^4F-3d^3\ ^2G$ (2F)
4435.1	0.20	2.98	3½-3½	
4665.5	0.34	2.98	4½-3½	
•4262.7	0.20	3.09	3½-4½	
	0.09	2.98	2½-3½	
4103.1	0.09	3.09	2½-4½	
4139.5	0.00	2.98	1½-3½	
3492.5	0.34	3.87	4½-3½	$3d^3\ ^4F-3d^3\ ^2D$ (3F)
3338.5	0.20	3.90	3½-1½	
3361.7	0.20	3.87	3½-2½	
3239.8	0.09	3.90	2½-1½	
3261.7	0.09	3.87	2½-2½	
3168.2	0.00	3.90	1½-1½	
3189.1	0.00	3.87	1½-2½	
3209.3	0.34	4.18	4½-5½	$3d^3\ ^4F-3d^3\ ^2H$ (4F)
3159.5	0.20	4.10	3½-4½	
3274.7	0.34	4.10	4½-4½	
3098.6	0.20	4.18	3½-5½	
3071.0	0.09	4.10	2½-4½	
10912.8	2.74	3.87	2½-2½	$3d^3\ ^4P-3d^3\ ^2D$ (5F)
9752.5	2.63	3.90	1½-1½	
10671.7	2.74	3.90	2½-1½	
9953.5	2.63	3.87	1½-2½	
9558.5	2.60	3.90	½-1½	
11347.6	3.09	4.18	4½-5½	$3d^3\ ^2G-3d^3\ ^2H$ (6F)
10988.0	2.98	4.10	3½-4½	
12309.6	3.09	4.10	4½-4½	
Co VIII I P ?				
5268.4	0.42	2.77	4-2	$3d^2\ ^3F-3d^2\ ^1D$ (1F)
4785.9	0.19	2.77	3-2	
4461.0	0.00	2.77	2-2	
Co VIII continued				
4564.7	0.42	3.13	4-2	$3d^3\ ^3F-3d^3\ ^3P$ (2F)
4492.3	0.19	2.94	3-1	
4422.4	0.00	2.79	2-0	
4198.0	0.19	3.13	3-2	
4204.9	0.00	2.94	2-1	
3946.0	0.00	3.13	2-2	
Co XI I P 304?				
5185	0.00	2.38	1½- ½	$3p^5\ ^2P°-3p^5\ ^2P°$ (1F)
Ni I I P 7.61				
7393.71	0.00	1.67	4-2	a^3F-b^1D (1F)
8201.77	0.16	1.67	3-2	
8843.42	0.27	1.67	2-2	
6404.46	0.00	1.93	4-2	a^3F-a^3P (2F)
6941.63	0.16	1.94	3-1	
7243.99	0.27	1.98	2-0	
7002.02	0.16	1.93	3-2	
7395.79	0.27	1.94	2-1	
7464.39	0.27	1.93	2-2	
4523.18	0.00	2.73	4-4	a^3F-a^1G (3F)
4813.27	0.16	2.73	3-4	
5027.34	0.27	2.73	2-4	
7507.44	0.03	1.67	3-2	a^3D-b^1D (4F)
7908.30	0.11	1.67	2-2	
8466.38	0.21	1.67	1-2	
6489.61	0.03	1.93	3-2	a^3D-a^3P (5F)
6730.25	0.11	1.94	2-1	
6989.04	0.21	1.98	1-0	
6437.70	0.03	1.94	3-1	
6604.30	0.11	1.98	2-0	
6787.00	0.11	1.93	2-2	
7130.24	0.21	1.94	1-1	
7193.97	0.21	1.93	1-2	
9887.18	0.42	1.67	2-2	a^1D-b^1D (6F)
8832.31	0.42	1.82	2-0	a^1D-a^1S (7F)
8194.57	0.42	1.93	2-2	a^1D-a^3P (8F)
8111.97	0.42	1.94	2-1	
7929.70	0.42	1.98	2-0	
Ni II I P 18.4				
10718.16	0.00	1.15	2½-3½	a^2D-a^4F (1F)
11616.88	0.19	1.25	1½-2½	
9885.74	0.00	1.25	2½-2½	
10921.07	0.19	1.32	1½-1½	
9377.33	0.00	1.32	2½-1½	
7379.57	0.00	1.67	2½-3½	a^2D-a^2F (2F)
7413.33	0.19	1.85	1½-2½	
6668.16	0.00	1.85	2½-2½	
8303.23	0.19	1.67	1½-3½	
4326.85	0.00	2.85	2½-2½	a^2D-b^2D (3F)
4485.87	0.19	2.94	1½-1½	
4201.74	0.00	2.94	2½-1½	
4628.77	0.19	2.85	1½-2½	
3993.65	0.00	3.09	2½-2½	a^2D-a^4P (4F)
4294.70	0.19	3.06	1½-1½	
4033.56	0.00	3.06	2½-1½	
4285.90	0.19	3.07	1½- ½	
4249.48	0.19	3.09	1½-2½	
4025.80	0.00	3.07	2½- ½	
3439.29	0.00	3.59	2½-1½	a^2D-a^2P (5F)
3559.86	0.19	3.65	1½- ½	
3378.55	0.00	3.65	2½- ½	
3627.35	0.19	3.59	1½-1½	
3074.11	0.00	4.01	2½-3½	a^2D-a^2G (6F)
6794.37	1.04	2.85	4½-2½	a^4F-b^2D (7F)
6911.05	1.15	2.94	3½-1½	
7256.16	1.15	2.85	3½-2½	
7307.82	1.25	2.94	2½-1½	
7694.82	1.25	2.85	2½-2½	
7612.96	1.32	2.94	1½-1½	
8033.86	1.32	2.85	1½-2½	
8007.34	1.04	3.09	4½-2½	a^4F-a^4P (8F)
6467.52	1.15	3.06	3½-1½	
6791.61	1.25	3.07	2½- ½	
6385.52	1.15	3.09	3½-2½	
6813.73	1.25	3.06	2½-1½	
7054.37	1.32	3.07	1½- ½	
6700.61	1.25	3.09	2½-2½	
7078.25	1.32	3.06	1½-1½	
6956.25	1.32	3.09	1½-2½	
5274.27	1.25	3.59	2½-1½	a^4F-a^2P (9F)
5281.46	1.32	3.65	1½- ½	
5431.39	1.32	3.59	1½-1½	
Ni II continued				
4147.30	1.04	4.01	4½-4½	a^4F-a^2G (10F)
4310.46	1.15	4.01	3½-3½	
4143.17	1.04	4.01	4½-3½	
4314.92	1.15	4.01	3½-4½	
4461.54	1.25	4.01	2½-3½	
4466.33	1.25	4.01	2½-4½	
4573.45	1.32	4.01	1½-3½	
10459.79	1.67	2.85	3½-2½	a^2F-b^2D (11F)
11359.87	1.85	2.94	2½-1½	
12323.27	1.85	2.85	2½-2½	
8704.34	1.67	3.09	3½-2½	a^2F-a^4P (12F)
10209.10	1.85	3.06	2½-1½	
9957.23	1.85	3.09	2½-2½	
7102.84	1.85	3.59	2½-1½	a^2F-a^2P (13F)
5275.83	1.67	4.01	3½-4½	a^2F-a^2G (14F)
5703.64	1.85	4.01	2½-3½	
5269.16	1.67	4.01	3½-3½	
5711.46	1.85	4.01	2½-4½	
Ni VII I P ?				
3191.2	0.29	4.16	4-2	$3d^4\ ^5D-3d^4\ ^3P$ (1F)
3379.7	0.19	3.84	3-1	
3503.8	0.10	3.62	2-0	
3106.0	0.19	4.16	3-2	
3299.6	0.10	3.84	2-1	
3440.3	0.03	3.62	1-0	
3038.3	0.10	4.16	2-2	
3243.2	0.03	3.84	1-1	
2990.4	0.03	4.16	1-2	
3214.5	0.00	3.84	0-1	
3413.3	0.29	3.91	4-5	$3d^4\ ^5D-3d^4\ ^3H$ (2F)
3396.7	0.19	3.83	3-4	
3486.6	0.29	3.83	4-4	
3165.4	0.29	4.19	4-4	$3d^4\ ^5D-3d^4\ ^3F$ (3F)
3106.1	0.19	4.16	3-3	
3048.8	0.10	4.15	2-2	
3191.3	0.29	4.16	4-3	
3117.1	0.19	4.15	3-2	
3081.6	0.19	4.19	3-4	
3038.4	0.10	4.16	2-3	
3000.6	0.03	4.15	1-2	
Ni VIII I P ?				
4772.4	0.46	3.05	4½-2½	$3d^3\ ^4F-3d^3\ ^4P$ (1F)
4644.2	0.27	2.93	3½-1½	
4493.3	0.13	2.87	2½- ½	
4446.2	0.27	3.05	3½-2½	
4404.4	0.13	2.93	2½-1½	
4297.8	0.00	2.87	1½- ½	
4225.9	0.13	3.05	2½-2½	
4216.4	0.00	2.93	1½-1½	
4052.5	0.00	3.05	1½-2½	
4106.1	0.46	3.46	4½-4½	$3d^3\ ^4F-3d^3\ ^2G$ (2F)
4032.3	0.27	3.33	3½-3½	
4298.8	0.46	3.33	4½-3½	
3862.3	0.27	3.46	3½-4½	
3850.3	0.13	3.33	2½-3½	
3695.0	0.13	3.46	2½-4½	
3705.8	0.00	3.33	1½-3½	
3228.2	0.46	4.28	4½-2½	$3d^3\ ^4F-3d^3\ ^2D$ (3F)
3035.3	0.27	4.34	3½-1½	
3075.6	0.27	4.28	3½-2½	
3036.4	0.46	4.54	4½-4½	$3d^3\ ^4F-3d^3\ ^2H$ (4F)
9977.1	3.05	4.28	2½-2½	$3d^3\ ^4P-3d^3\ ^2D$ (5F)
8761.8	2.93	4.34	1½-1½	
9565.8	3.05	4.34	2½-1½	
9105.8	2.93	4.28	1½-2½	
8430.1	2.87	4.34	½-1½	
10627.5	3.46	4.63	4½-5½	$3d^3\ ^2G-3d^3\ ^2H$ (6F)
10225.3	3.33	4.54	3½-4½	
11509.6	3.46	4.54	4½-4½	
Ni IX I P ?				
5056.5	0.61	3.05	4-2	$3d^2\ ^3F-3d^2\ ^1D$ (1F)
4331.7	0.20	3.05	3-2	
4043.4	0.00	3.05	2-2	
4190.6	0.61	3.56	4-2	$3d^2\ ^3F-3d^2\ ^3P$ (2F)
4065.7	0.20	3.24	3-1	
4112.7	0.00	3.00	2-0	
3680.3	0.20	3.56	3-2	
3810.6	0.00	3.24	2-1	
3470.0	0.00	3.56	2-2	
Ni XII I P ?				
4231.4	0.00	(2.93)	1½- ½	$3p^5\ ^2P°-3p^5\ ^2P°$ (1F)

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I A	E P Low	E P High	J	Multiplet (No)
Ni XIII I P 350?				
5116.3	0.00	(2.41)	2-1	$3p^4\ ^3P-3p^4\ ^3P$ (1F)
5116.03 c)				
3643.3	(2.41	5.80)	1-2	$3p^4\ ^3P-3p^4\ ^1D$ (2F)
Ni XV I P 455?				
8024	(1.84	3.38)	1-2	$3p^3\ ^3P-3p^3\ ^3P$ (1F)
8024.21 c)				
6700.6	0.00	(1.84)	0-1	
6701.83 c)				
Ni XVI I P ?				
3601.3	0.00	3.43	½-1½	$3p^3P^o-3p^2P^o$ (1F)
Cu II I P 20.18				
4375.71	0.00	2.82	0-2	$3d^{10}\ ^1S-4s^3D$
4165.79	0.00	2.96	0-1	(1F)
3806.34	0.00	3.24	0-2	$3d^{10}\ ^1S-4s^1D$ (2F)
Kr III I P 36.8				
6826.9	0.00	1.81	2-2	$4p^4\ ^3P-4p^4\ ^1D$
9902.2	0.56	1.81	1-2	(1F)
Sr II I P 10.98				
6738.40	0.00	1.83	½-2½	5^2S-4^2D
6868.18	0.00	1.80	½-1½	(1F)
Y II I P 12.3				
7091.17	0.00	1.74	0-2	a^1S-a^3P
7131.55	0.00	1.73	0-1	(1F)
6739.91	0.00	1.83	0-2	a^1S-b^1D (2F)
7904.04	0.18	1.74	3-2	a^3D-a^3P
7706.06	0.13	1.73	2-1	(3F)
7664.67	0.10	1.71	1-0	
7954.24	0.18	1.73	3-1	
7787.00	0.13	1.71	2-0	
7658.92	0.13	1.74	2-2	
7586.23	0.10	1.73	1-1	
7540.54	0.10	1.74	1-2	
7470.10	0.18	1.83	3-2	a^3D-b^1D
7250.78	0.13	1.83	2-2	(4F)
7144.60	0.10	1.83	1-2	
9255.10	0.41	1.74	2-2	a^1D-a^3P
9324.01	0.41	1.73	2-1	(5F)
9442.77	0.41	1.71	2-0	
8665.66	0.41	1.83	2-2	a^1D-b^1D (6F)
Y V I P 77				
8284.1	0.00	1.49	1½-½	$4p^5\ ^2P^o-4p^5\ ^2P^o$ (1F)
Zr II I P 13.97				
10860.44	0.09	1.23	3½-2½	a^4F-b^4P
10603.65	0.04	1.20	2½-1½	(1F)
10464.94	0.00	1.18	1½-½	
10355.58	0.04	1.23	2½-2½	
10261.18	0.00	1.20	1½-1½	
10028.71	0.00	1.23	1½-2½	
9058.16	0.16	1.53	4½-5½	a^4F-a^2H
8909.40	0.09	1.48	3½-4½	(2F)
9376.93	0.16	1.48	4½-4½	
7786.03	0.16	1.75	4½-2½	a^4F-b^2D
7893.57	0.09	1.66	3½-1½	(3F)
7460.93	0.09	1.75	3½-2½	
7623.44	0.04	1.66	2½-1½	
7319.15	0.04	1.75	2½-2½	
7444.80	0.00	1.66	1½-1½	
7058.76	0.00	1.75	1½-2½	
7769.35	0.16	1.75	4½-4½	a^4F-b^2G
7518.81	0.09	1.74	3½-3½	(4F)
7849.08	0.16	1.74	4½-3½	
7445.63	0.09	1.75	3½-4½	
7273.33	0.04	1.74	2½-3½	
7204.82	0.04	1.75	2½-4½	
7110.54	0.00	1.74	1½-3½	
Zr II continued				
7454.82	0.16	1.82	4½-2½	a^4F-c^2D
7386.11	0.09	1.77	3½-1½	(5F)
7156.26	0.09	1.82	3½-2½	
7149.08	0.04	1.77	2½-1½	
6933.53	0.04	1.82	2½-2½	
6991.75	0.00	1.77	1½-1½	
6785.44	0.00	1.82	1½-2½	
5855.37	0.16	2.27	4½-2½	a^4F-d^2D
5932.88	0.09	2.17	3½-1½	(6F)
5669.58	0.09	2.27	3½-2½	
5778.97	0.04	2.17	2½-1½	
5528.87	0.04	2.27	2½-2½	
5675.73	0.00	2.17	1½-1½	
5434.30	0.00	2.27	1½-2½	
5520.18	0.16	2.40	4½-3½	a^4F-b^2F
5331.46	0.09	2.41	3½-2½	(7F)
5495.42	0.16	2.41	4½-2½	
5354.76	0.09	2.40	3½-3½	
5206.84	0.04	2.41	2½-2½	
5229.06	0.04	2.40	2½-3½	
5122.88	0.00	2.41	1½-2½	
5144.39	0.00	2.40	1½-3½	
9607.90	0.46	1.75	4½-2½	b^4F-b^2D
9870.08	0.41	1.66	3½-1½	(8F)
9202.81	0.41	1.75	3½-2½	
9490.96	0.36	1.66	2½-1½	
8872.37	0.36	1.75	2½-2½	
9208.72	0.32	1.66	1½-1½	
8625.25	0.32	1.75	1½-2½	
9582.55	0.46	1.75	4½-4½	b^4F-b^2G
9291.03	0.41	1.74	3½-3½	(9F)
9704.10	0.46	1.74	4½-3½	
9179.54	0.41	1.75	3½-4½	
8954.34	0.36	1.74	2½-3½	
8850.73	0.36	1.75	2½-4½	
8702.70	0.32	1.74	1½-3½	
9108.53	0.46	1.82	4½-2½	b^4F-c^2D
9089.24	0.41	1.77	3½-1½	(10F)
8743.65	0.41	1.82	3½-2½	
8766.76	0.36	1.77	2½-1½	
8444.83	0.36	1.82	2½-2½	
8525.41	0.32	1.77	1½-1½	
8220.84	0.32	1.82	1½-2½	
6829.24	0.46	2.27	4½-2½	b^4F-d^2D
8984.07	0.41	2.17	3½-1½	(11F)
6622.05	0.41	2.27	3½-2½	
6793.01	0.36	2.17	2½-1½	
6449.21	0.36	2.27	2½-2½	
6646.31	0.32	2.17	1½-1½	
6317.64	0.32	2.27	1½-2½	
6377.59	0.46	2.40	4½-3½	b^4F-b^2F
6165.35	0.41	2.41	3½-2½	(12F)
6344.56	0.46	2.41	4½-2½	
6196.53	0.41	2.40	3½-3½	
6015.26	0.36	2.41	2½-2½	
6044.94	0.36	2.40	2½-3½	
5900.64	0.32	2.41	1½-2½	
5929.20	0.32	2.40	1½-3½	
10351.92	0.56	1.75	2½-2½	a^2D-b^2D
10890.02	0.52	1.66	1½-1½	(13F)
11203.92	0.56	1.66	2½-1½	
10083.37	0.52	1.75	1½-2½	
9774.53	0.56	1.82	2½-2½	a^2D-c^2D
9947.19	0.52	1.77	1½-1½	(14F)
10208.43	0.56	1.77	2½-1½	
9534.75	0.52	1.82	1½-2½	
7196.91	0.56	2.27	2½-2½	a^2D-d^2D
7479.79	0.52	2.17	1½-1½	(15F)
7626.54	0.56	2.17	2½-1½	
7068.07	0.52	2.27	1½-2½	
6697.09	0.56	2.40	2½-3½	a^2D-b^2F
6548.47	0.52	2.41	1½-2½	(16F)
6660.68	0.56	2.41	2½-2½	
6583.66	0.52	2.40	1½-3½	
6418.86	0.56	2.48	2½-1½	a^2D-b^2P
6508.40	0.52	2.42	1½-½	(17F)
8617.17	0.58	2.42	2½-½	
6314.58	0.52	2.48	1½-1½	
11595.50	0.75	1.82	1½-2½	a^2P-c^2D
11659.62	0.71	1.77	½-1½	(18F)
12211.22	0.75	1.77	1½-1½	
11096.98	0.71	1.82	½-2½	
8137.88	0.75	2.27	1½-2½	a^2P-d^2D
8408.39	0.71	2.17	½-1½	(19F)
8691.53	0.75	2.17	1½-1½	
7889.15	0.71	2.27	½-2½	
7156.94	0.75	2.48	1½-1½	a^2P-b^2P
7197.88	0.71	2.42	½-½	(20F)
7404.36	0.75	2.42	1½-½	
6963.85	0.71	2.48	½-1½	
12094.78	0.80	1.82	3½-2½	a^2F-c^2D
11698.62	0.71	1.77	2½-1½	(21F)
11132.24	0.71	1.82	2½-2½	
8380.68	0.80	2.27	3½-2½	a^2F-d^2D
8428.62	0.71	2.17	2½-1½	(22F)
8969.06	0.80	2.17	3½-1½	
7906.95	0.71	2.27	2½-2½	
Zr II continued				
7710.58	0.80	2.40	3½-3½	a^2F-b^2F
7264.43	0.71	2.41	2½-2½	(23F)
7662.36	0.80	2.41	3½-2½	
7307.76	0.71	2.40	2½-3½	
9670.04	0.99	2.27	3½-3½	a^4P-d^2D
10120.75	0.96	3.17	1½-1½	(24F)
10461.95	0.99	2.17	2½-1½	
9377.83	0.96	2.27	1½-2½	
8315.71	0.99	2.48	2½-1½	a^4P-b^2P
8416.96	0.96	2.42	1½-½	(25F)
8098.70	0.96	2.48	1½-1½	
8261.59	0.93	2.42	½-½	
7954.76	0.93	2.48	½-1½	
8882.47	1.01	2.40	4½-3½	a^2G-b^2F
8561.42	0.97	2.41	3½-2½	(28F)
8798.82	1.01	2.41	4½-2½	
8621.67	0.97	2.40	3½-3½	
9886.87	1.23	2.48	2½-1½	b^4P-b^2P
10128.19	1.20	2.42	1½-½	(27F)
9670.87	1.20	2.48	1½-1½	
9937.20	1.18	2.42	½-½	
9496.60	1.18	2.48	½-1½	
Zr III I P 24.0				
5539.74	0.18	2.41	4-3	$4d^2\ ^3F-5s^3D$
5517.24	0.08	2.32	3-2	(1F)
5433.89	0.00	2.27	2-1	
5773.51	0.18	2.32	4-2	
5643.02	0.08	2.27	3-1	
5303.37	0.08	2.41	3-3	
5316.97	0.00	2.32	2-2	
5118.07	0.00	2.41	2-3	
7853.3	0.42	1.99	2-2	$4d^2\ ^1D-5s^1D$ (2F)
6193.7	0.42	2.41	2-3	$4d^2\ ^1D-5s^3D$
6487.5	0.42	2.32	2-2	(3F)
6661.7	0.42	2.27	2-1	
6864.4	0.47	2.27	0-1	$4d^2\ ^1S-5s^3D$ (4F)
9349.2	1.09	2.41	2-3	$4d^2\ ^3P-5s^3D$
9543.3	1.03	2.32	1-2	(5F)
9671.2	1.00	2.27	0-1	
10034.9	1.09	2.32	2-2	
9926.0	1.03	2.27	1-1	
8921.0	1.03	2.41	1-3	
9307.5	1.00	2.32	0-2	
10458.9	1.09	2.27	2-1	
Zr VI I P 99				
6408.5	0.00	1.93	1½-½	$4p^5\ ^2P^o-4p^5\ ^2P^o$ (1F)
Xe II I P 21.1				
9487.5	0.00	1.30	1½-½	$5p^5\ ^2P^o-5p^5\ ^2P^o$ (1F)
Xe III I P 32.0				
10206.5	0.00	1.21	2-1	$5p^4\ ^3P-5p^4\ ^3P$ (1F)
5846.3	0.00	2.11	2-2	$5p^4\ ^3P-5p^4\ ^1D$ (2F)
La II I P 11.38				
11011.70	0.13	1.25	3-2	a^3F-b^1D
9903.31	0.00	1.25	2-2	(1F)
11490.57	0.17	1.25	2-2	a^1D-b^1D (2F)
La III I P 19.1				
8339.72	0.20	1.68	2½-½	5^2D-6^2S
7355.92	0.00	1.68	1½-½	(1F)
Eu II I P 11.21				
8983.71	0.00	1.37	4-6	$a^9S-a^9D^o$
9392.85	0.00	1.31	4-5	(1F)
9694.01	0.00	1.27	4-4	
9918.30	0.00	1.24	4-3	
10074.84	0.00	1.22	4-2	
5929.31	0.00	2.08	4-5	$a^9S-a^7D^o$
5879.32	0.00	2.10	4-4	(2F)
5832.40	0.00	2.13	4-3	
5796.28	0.00	2.13	4-2	

Part II—Finding List of All Lines in the Table of Multiplets

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A MULTIPLET TABLE OF ASTROPHYSICAL INTEREST

PART II

Finding List of All Lines in the Table of Multiplets

1. Introduction

Any arrangement of the wave-lengths in a given spectrum, by multiplets makes it inconvenient to locate a given line. The difficulty is greatly increased when many spectra are involved. Consequently a "Finding List" containing *all* lines in the Revised Multiplet Table has been included as Part II of this Contribution. As in the R M T the Finding List is in two parts. The first contains permitted lines observed in the laboratory, permitted predicted lines, and a few forbidden lines observed in the laboratory when a strong electric field is present. The second contains only forbidden lines of the nebular, auroral and coronal type. See §5.

2. Part A—Observed and Permitted Predicted Lines

The lines are listed in order of increasing wave-length and cover the range λλ2951–13164. At the violet end of this long range, the proportion of known lines included is smaller than in the main body of the list, due to the masking by the ozone in our atmosphere of all but the strongest lines. The number of lines in the same wave-length interval decreases from the violet to the red. The incompleteness of laboratory material accentuates this in the infra-red. The total number of lines in this section is approximately 23,200.

Three entries are given for each line and a fourth if the line is predicted or forbidden. All entries are copied directly from Part I of this Contribution. The first is the laboratory wave-length. The source from which the wave-length is taken can be found from the references A, B, C etc. in the R M T and Table 7.

The second entry headed "Type" is blank for all lines observed in the laboratory, except the selected forbidden ones that appear under special conditions, (due to Stark effect). These are marked "Forb" and include 11 lines of *He* I, 6 of *Na* I, 11 of *Al* II, 2 of *Al* III and 2 of *K* I.

Predicted Lines. These fall into three classes. (a) For some faint lines observed in the laboratory but not well-measured, a predicted wave-length obtained from the spectroscopic term values is preferable to the observed value. (b) It is well-known that many predicted lines not yet observed in the laboratory are important astrophysically, and an attempt has been made to include these in the R M T. (c) If a line that would otherwise be included is masked by a strong line in the laboratory, the predicted position of the masked line is entered. Such cases are carefully noted and explained in the R M T. In every case where a predicted wave-length is used, the entry "P" occurs in the column headed "Type" in the Finding List. This column contains only the two entries "Forb" and "P". All other lines are observed laboratory wave-lengths in the usual sense of the word "observed".

The third entry for each line is the spectrum to which the line belongs. Here the chemical symbols of the elements are used and Roman numerals denote arc spectra (I) and spark spectra in successive stages of ionization, i.e. first spark spectrum (II), second spark spectrum (III) etc.

Finally the number of the multiplet to which the line of a given spectrum belongs, is given under the heading "Multiplet No." This number appears under the "Multiplet Designation" of each multiplet in the R M T and the numbers start with 1 for each spectrum. All lines of a given multiplet have the same multiplet number. A blank in this column indicates that the line is unclassified. In the R M T, under a given spectrum, unclassified lines follow the multiplets.

When two or more numbers appear in this column, the line is a blend and occurs in each of the multiplets indicated.

Examples: λ2957.56 is due to *Cr* II and appears in Multiplets 104 and 141 of *Cr* II (See pp. 44 and 45 of the R M T).

λ2984.89 is a predicted wave-length. The line is in Multiplet No. 60 of *Fe* II (See p. 67 of the R M T).

λ2991.632 is an unclassified line of *Fe* I (See p. 65 of the R M T).

3. Blends

Reference has been made above to a line appearing in two multiplets of a given spectrum, for example λ2957.56. Such blends can be readily detected in the Finding List by the presence of more than one multiplet number. In the R M T they are noted by an asterisk. This applies to blended lines in the same spectrum.

If, however, an arc and spark line of an element are blended the wave-length is repeated in the Finding List; or nearly identical wave-lengths are entered, if different measures were used in the two instances. For example λ2988.952 appears in Multiplet No. 11 of *Sc* I and in Multiplet No. 34 of *Sc* II. In the R M T such lines have an asterisk preceding the wave-length and the symbol "§" following it.

A careful examination of close pairs of lines of a given element in the Finding List will doubtless reveal more blends than have been noted in the R M T. Similarly, it is probable that erroneous identifications of lines due to impurities that have not heretofore been suspected, can be detected.

The predicted wave-lengths of masked lines (§2) fall close to observed lines. For example λ2965.25 is the predicted position of the line of *Fe* I in Multiplet No. 316, masked by the strong *Fe* I line at λ2965.255, which occurs in Multiplet No. 10.

All predicted lines have separate entries in the Finding List, regardless of how close the pairs in a given spectrum may be—for example, λλ2990.33 and 2990.34 are both predicted lines of *Fe* I. If observed in the laboratory these lines would undoubtedly be blended.

When identical wave-lengths appear in spectra of different elements, the lines are arranged in the alphabetical order of the chemical symbol. When similar wave-lengths occur in spectra of different stages of ionization of a given element, the arc spectrum comes first, then the spark spectra, in order of increasing ionization.

4. Scope of the Finding List

The users of this Finding List are emphatically warned that the list is *not complete*. The range is that useful to the astrophysicist, having the violet limit λ2951. Within the range covered, the elements to be included have been selected according to their astrophysical importance. For a given element, the spectra for different degrees of ionization and the lines of each have been similarly selected. It is fairly complete for the first spark spectra through the first long period. It lists only the leading arc lines for many elements, but includes all observed classified lines of *Fe* I. For any element, the List grading in the R M T can be used as a guide to the completeness of selection. On account of these restrictions this book is not a list of "Hauptlinien" or a compendium of wave-lengths of elements in general. On the other hand it does contain a large number of predicted lines which invite the attention of the laboratory worker in spectroscopy.

5. Part B. Forbidden Lines—Nebular, Auroral, Coronal etc.

The second part of the Finding List contains only forbidden lines. Here the word "forbidden" applies in the general sense—i.e. lines due to downward transitions from metastable states in the atoms. The number of lines listed is roughly 2550.

The arrangement is similar to Part A of the Finding List, with the exception that in Part B the great majority of lines are predicted. Consequently no column headed "Type" is given. The wave-lengths that are *not* predicted are noted by the following letters:

N Nebular Wave-length

L Laboratory Wave-length

A Auroral Wave-length

C Coronal Wave-length

Column two contains the chemical symbol and stage of ionization of the spectrum as in Part A, and column three the Multiplet Number. In order to avoid confusion with Multiplet Numbers in Part A, all Multiplets of forbidden lines have the letter "F" accompanying the Multiplet Number.

6. Contents

A complete list of all possible forbidden lines in the region useful to the astrophysicist would be prohibitively long. For simple spectra the lines are few, but for the complex spectra, particularly in the first long period, fairly rigid selection has been made. Anyone desiring to construct complete lists is advised to consult the references to the analysis of the various spectra.

7. Index of The Finding Lists

In order to facilitate the work of transferring from the Multiplet Number of the Finding List to the Multiplet in the R M T, a separate card is enclosed in the Finding List, containing an index of the R M T. The elements are in order of increasing atomic number. This index gives the multiplets of each element contained on each page of the R M T.

For example, λ2980.296 is in Multiplet No. 94 of *Ti* I. On the index card hunt *Ti* I and then this Multiplet Number. It is to be found on page 27 of the R M T, which contains Multiplets of *Ti* I from No. 55 through No. 140.

8. Errata

After the tabular material in the Finding List had been completed for publication, four errors were detected, as follows:

I A	Element	Multiplet No.		I A	Type	Element	Multiplet No.
3497.137	Fe I	78	should read	3497.15	P	Fe I	78
4618.568	Fe I	1151	Reject—Wave-length erroneous				
4061.3	*Sc* III		should read	4061.3		Sc III	1
4068.7	Sc III		should read	4068.7		Sc III	1

The writer will be grateful to those who use this Table if they will call to her attention any errors they detect, so that a list of errata may be published. In the compilation of a list containing about 25,750 lines, doubtless there are a number of mistakes in spite of the care that has been taken to avoid errors.

I A	Type	Element	Multiplet No.
2951.40		Cr II	59
2951.95		Cr II	59
2952.07		V II	2
2953.358		Cr II	27
2953.706		Cr II	66
2953.774		Fe II	2
2953.940		Fe I	10
2954.050		Fe II	61
2954.332		V I	18
2954.67		Cr II	104
2955.12		Cr II	59
2955.71		Cr II	58
2956.133		Ti I	30
2956.60		Cr II	58
2956.797		Ti I	30
2957.28		Cr I	
2957.33		V I	18
2957.365		Fe I	10
2957.520		V II	2
2957.56		Cr II	104,141
2958.20		Cr II	49
2958.528		Fe II	160
2958.54		Cr II	97
2959.601		Fe II	62
2959.841		Fe II	180
2959.97		Cr II	59
2959.992		Fe I	316
2960.303		Fe I	148
2960.926		Gd II	25
2961.119		Fe II	180
2961.272		Fe II	2
2961.732		Cr II	27,59
2962.11		Fe I	57
2962.167		Rh II	4
2962.772		V I	18
2962.936		Fe II	160
2963.249		V II	154
2963.46		Cr II	58
2963.605		Gd II	
2963.73		Cr I	
2963.897		Fe II	
2964.131		Fe II	60
2964.629		Fe II	8
2964.88		Hf I	4
2964.96		Y I	11
2965.036		Fe II	8
2965.19		Cr II	58,160
2965.231		Ti I	94
2965.25	P	Fe I	316
2965.255		Fe I	10
2965.395		Fe II	59
2965.428		Gd II	29
2965.54		Ta I	2
2965.564		Ru II	4
2965.68		Ti I	94
2965.707		Ti I	94
2965.86		Sc I	11
2966.051		Cr II	33
2966.26		Fe I	104
2966.27		Zr II	148
2966.901		Fe I	10
2967.225		Ti I	30
2967.642		Cr I	28
2968.119		Fe II	160
2968.21		Cr II	96
2968.231		Ti I	29
2968.373		V II	28
2968.67		Cr II	58
2968.738		Fe II	61
2968.82		Hf II	12
2968.906		Fe II	
2968.95		Zr II	14
2969.267		Gd II	28
2969.364		Fe I	11
2969.474		Fe I	30
2969.67		Cr II	66
2969.934		Fe II	70
2970.106		Fe I	10,11
2970.35		Si I	1
2970.384		Ti I	29
2970.510		Fe II	2
2970.556		Ti I	94
2970.66		Cr II	57
2970.682		Fe II	69
2971.112		Cr I	28
2971.616		Fe II	60
2971.906		Cr II	28
2972.016		Fe II	160
2972.17		Gd II	77
2972.263		V II	87
2972.277		Fe I	104
2972.64		Cr II	28
2972.742		Gd II	25
2972.769		Fe II	159
2973.137		Fe I	10
2973.236		Fe I	10
2973.975		V II	218
2974.006		Sc I	11
2974.59		Y I	10
2974.78		Fe I	335
2974.934		Ti I	94
2975.110		Gd II	77
2975.16		Zr II	64
2975.483		Cr I	28
2975.650		V II	28
2975.89		Hf II	10
2975.938		Fe II	2
2976.126		Fe I	146
2976.197		V II	28
2976.50	P	Fe I	56
2976.517		V II	28
2976.593		Ru II	4
2976.61		Zr II	77
2976.718		Cr II	27
2976.905		Ce II	168
2976.922		Fe I	334
2977.226		Ru II	4
2977.539		V I	18
2978.07		Zr II	14
2978.18		Y II	45
2978.226		V II	87
2978.850		Fe II	69
2979.05		A II	19
2979.096		Fe II	100,180
2979.102		V II	44
2979.18		Zr II	14
2979.199		Ti II	123
2979.349		Fe II	2
2979.382		Rh II	4
2979.683		Sc II	44
2979.726		Ru II	5
2979.741		Cr II	28
2979.957		Ru II	4
2980.154		Gd II	12
2980.296		Ti I	94
2980.532		Fe I	317
2980.60	P	Fe I	201
2980.69		Y II	54
2980.752		Sc I	11
2980.791		Cr I	28
2980.82		Hf I	2
2980.963		Fe II	61
2981.02		Zr II	24
2981.200		V II	87
2981.446		Fe I	11
2981.448		Ti I	29
2981.651		Ni I	26
2981.852		Fe I	104
2981.924		V II	114
2982.059		Fe II	139
2982.100		Cb II	2
2982.234		Fe I	460
2982.239		Fe II	70
2982.75		V II	28
2982.78		Cl II	53
2983.009		V II	22,28
2983.060		Gd II	77
2983.306		Ti I	29
2983.558		V II	28
2983.574		Fe I	9
2983.66		O III	7
2983.78		O III	6
2984.131		Ni I	12
2984.183		Na II	2
2984.25		Y I	10
2984.35	P	Ti II	28
2984.69		Cr II	27
2984.785		Fe I	29
2984.82		Cr I	15
2984.831		Fe II	8
2984.89	P	Fe II	60
2985.02		Cr II	56
2985.184		V II	218
2985.29	P	Fe II	69
2985.325		Cr II	28
2985.36		Zr I	22
2985.43		La II	145
2985.477		Ti I	29
2985.521		Gd II	77
2985.545		Fe II	8
2985.849		Cr I	28
2985.98		S III	14
2985.995		Cr I	28
2986.137		Cr I	28
2986.456		Fe I	11
2986.473		Cr I	28
2986.617		Fe II	62
2986.655		Fe I	200
2986.91	P	Fe II	86
2987.074		Gd II	57
2987.166		Co I	11
2987.27	P	Fe II	86
2987.292		Fe I	30
2987.40		Ti II	28
2987.542		Fe II	223
2987.65		Si I	1
2987.72		Ca II	11
2987.80		Zr II	86
2988.027		V II	27
2988.05		Ni II	6
2988.056		Cr II	28
2988.367		Rh II	3
2988.468		Fe I	56
2988.61		Ca III	2
2988.649		Cr I	14
2988.74		Zr II	148
2988.942		Fe I	316
2988.952		Sc I	11
2988.952		Sc II	34
2989.01	P	Fe II	86
2989.079		Fe II	159
2989.194		Cr II	28
2989.30		Ca III	4
2989.306		V II	87
2989.367		Fe II	86
2989.42		Ca II	11
2989.590		Co I	13
2989.594		V II	28
2989.731		Fe II	86
2989.74		V II	87
2990.10		Zr II	27
2990.16		Ti II	123
2990.33	P	Fe I	334
2990.34	P	Fe I	460
2990.392		Fe I	316
2990.873		Ce II	72
2990.948		V I	58
2991.095		Ni I	14,80
2991.244		Fe II	60
2991.33		Eu II	3
2991.40		Zr II	6
2991.520		Gd II	25
2991.626		Ru II	5
2991.632		Fe I	
2991.817		Fe II	160
2991.886		Cr I	28
2992.11		O III	10
2992.24		K III	2
2992.378		V II	114
2992.40		Cr II	28
2992.595		Ni I	25
2992.63		C II	8
2993.038		Gd II	42
2993.366		Fe II	139
2994.05		Zr II	
2994.069		Cr I	14
2994.259	P	Al II	14
2994.427		Fe I	9
2994.460		Ni I	27
2994.50		Fe I	11
2994.540		V II	218
2994.725		Cb II	
2994.737		Cr II	28
2994.958		Ca I	17
2995.10		Cr I	15
2995.26		Y I	11
2995.530	P	Al II	14
2995.546	P	Al II	14
2995.644		Ce II	183
2995.838		Fe I	460
2995.999		V II	27
2996.386		Fe I	148
2996.51		O III	10
2996.549		Co I	77
2996.580		Cr I	28
2996.63		Cl II	22
2996.70		V II	28
2996.88	P	Ti II	28
2996.94		Y I	9
2997.08		V I	116

I A	Type	Element	Multiplet No.
2997.298		Fe II	139
2997.309		Ca I	17
2997.364		Cu I	5
2997.749		Fe II	85
2997.71		O III	10
2997.87		V I	116
2997.945		V II	141
2997.97		Pt I	3
2998.158	P	Al II	14
2998.163	P	Al II	14
2998.34		Zr II	13
2998.49		Zr II	86
2998.787		Cr I	14
2998.855		Fe II	60
2998.896		Ru II	5
2999.045		Gd II	12
2999.238		V I	58
2999.30		Cr II	33
2999.512		Fe I	30
2999.641		Ca I	17
2999.92	P	Ti II	28
2999.96		Cr II	42
3000.059		Fe II	69
3000.09		Hf II	3
3000.14		A II	
3000.45		A II	72
3000.452		Fe I	56
3000.545		Co I	13
3000.59		Zr II	147
3000.836		Fe III	10
3000.863		Ca I	17
3000.868		Ti I	29
3000.890		Cr I	28
3000.950		Fe I	9
3001.203		V II	27
3001.42		Y II	53
3001.589		Fe III	9
3001.65		Ne II	4
3001.66	P	Fe I	506
3001.754		V II	141
3001.90		V I	116
3001.93		V II	43
3002.09	P	Fe II	138
3002.197		Gd II	77
3002.330		Fe II	98
3002.442		V I	
3002.491		Ni I	26
3002.65		V I	47
3002.650		Fe II	8
3002.66		Pd I	4
3002.710		Gd II	77
3002.728		Ti I	29
3002.860		Gd II	
3002.99		Fe III	9
3003.00		A II	
3003.031		Fe I	30
3003.282		Fe III	89
3003.37	P	Ti II	28
3003.461		V II	27
3003.583		Gd II	25
3003.629		Ni I	26
3003.73		Zr II	26
3003.924		Cr II	33
3004.109		Fe III	21,41
3004.119		Fe I	199
3004.249		Fe II	69
3004.35		O III	10
3004.39		Cl II	22
3004.47		Cr II	88
3004.48	P	Fe I	105
3004.490		Fe III	41
3004.62		Fe I	57
3004.68		La II	
3004.824		V I	47
3005.057		Cr I	28
3005.092		Gd II	
3005.26		Y I	9
3005.302		Fe I	199
3005.36		Zr I	38
3005.50		Zr I	60
3005.62		O II	
3005.766		Co I	77
3005.813		V II	86
3006.0		Y II	54
3006.04		O II	
3006.05		Cl II	22
3006.122		Fe III	21
3006.24		V I	116
3006.35		V I	75
3006.502		V II	141

I A	Type	Element	Multiplet No.
3006.82		O II	
3006.858		Ca I	17
3006.86		N II	18
3006.90		V I	116
3006.95	P	Fe III	21
3006.98		Cl II	53
3007.035		V II	141
3007.071		Na II	12
3007.08		O II	74
3007.146		Fe I	55
3007.2		Fe III	116
3007.284		Fe I	11
3007.296		V II	27
3007.32		La II	102
3007.442		Na II	1
3007.487		Ti I	
3007.655		Mn I	35
3007.74		O II	74
3007.75	P	Fe I	262
3007.802		Fe III	10
3007.975		Nd II	
3008.13		Zr II	86
3008.139		Fe I	9
3008.265		Mn I	35
3008.28		O II	74
3008.322		Ti II	85
3008.506		Fe III	9
3008.508		V II	141
3008.610		V II	26
3008.67		Cr II	75
3008.789		Ce II	122
3008.79		O III	10
3008.996		Rh II	4
3009.098		Fe I	198
3009.136		Sn I	1
3009.138		Na II	13
3009.205		Ca I	17
3009.366		Gd II	25
3009.570		Fe I	30
3009.650		Gd II	27
3009.85		Zr II	64
3009.998		Fe III	41
3010.129		Gd II	12
3010.220		Fe II	181
3010.28		Zr II	39
3010.42	P	Ti I	170
3010.76		W II	14
3010.838		Cu I	3
3010.899		Gd II	42
3011.060		Fe III	31
3011.162		Mn I	35
3011.24		Hf II	64
3011.376		Mn I	35
3011.42		Cr II	27
3011.482		Fe I	316
3011.73		Zr I	22
3012.004		Ni I	41
3012.01		Cr II	87
3012.020		V II	43
3012.190		Gd II	29
3012.34		Cr II	42
3012.59	P	Fe II	69
3012.847		Fe III	10
3012.90		Hf II	4
3013.030		Cr I	26
3013.102		V II	26
3013.125		Fe III	9
3013.32		Zr II	27
3013.37		O II	56
3013.38	P	Fe II	138
3013.592		Co I	10
3013.66		Zr II	52
3013.713		Cr I	26
3013.802		Fe II	124
3014.120		Fe I	458
3014.165		Nd II	
3014.176		Fe I	31
3014.37		V I	116
3014.44		Zr I	21
3014.49		A II	72
3014.668		Mn I	35
3014.760		Cr I	27
3014.822		V II	27
3014.915		Cr I	27
3015.194		Cr I	27
3015.230		Fe III	9
3015.296		Tm II	8
3015.364		Sc I	10
3015.400		Na II	5
3015.510		Cr II	87

I A	Type	Element	Multiplet No.
3015.67		Zr II	86
3015.686		Co I	76
3015.86		Zr II	127
3015.913		Fe I	198
3015.98		V II	42
3016.14		V II	26
3016.15		A IV	1
3016.16		V I	58
3016.186		Fe I	30
3016.454		Mn I	35
3016.775		V II	27
3016.94		Hf II	3
3017.187		Ti II	85
3017.195		Ce II	107
3017.254		Co I	78
3017.34		Ne II	8
3017.447		W I	9
3017.548		Co I	11
3017.569		Cr I	27
3017.628		Fe I	9
3017.63		O III	10
3017.80		Cr II	95
3018.08		Zr II	
3018.134		Fe I	199
3018.25	P	Fe I	263
3018.32		Hf I	2
3018.352		Zn I	5
3018.496		Cr I	26
3018.53		Zr II	147
3018.744		Fe III	10
3018.82		Cl II	22
3018.821		Cr I	26
3018.95		La II	
3018.983		Fe I	30
3019.09		V II	86
3019.143		Ni I	11
3019.291		Fe I	199
3019.350		Sc I	10
3019.819		Rh II	3
3019.84		Zr II	6
3020.001		Fe II	110
3020.45		Zr II	26
3020.495		Fe I	9
3020.54		Hf I	4
3020.643		Fe I	9
3020.65		V II	26
3020.673		Cr I	27
3021.074		Fe I	9
3021.407		Fe II	59
3021.558		Cr I	27
3021.74		Pd I	6
3021.74		Y I	9
3021.78		V I	75
3021.97		Zr II	39
3021.98		W II	6
3022.00		Fe III	76
3022.146		V II	86
3022.26		La II	116
3022.28		Y I	10
3022.57		V II	26
3022.736		Ce III	5
3022.749		Mn I	35
3022.804	P	Al II	13
3022.820		Ti II	126
3022.93		Cl II	57
3023.45		O III	4
3023.50		Y II	79
3023.583		Fe. I	103
3023.80		N II	35
3023.85		Fe III	10
3023.859		Fe II	84
3023.86		Ti II	126
3023.882		V II	41
3024.033		Fe I	11
3024.05		A III	4
3024.098	P	Al II	13
3024.114	P	Al II	13
3024.350		Cr I	26
3024.36		O III	10
3024.400		Co I	52
3024.51		W II	4
3024.57		O III	4
3024.681		Cr I	117
3024.72		Zr II	147
3024.78		Hf II	47
3024.92	P	Fe II	138
3024.981		V II	85
3025.16		Zr II	86
3025.283		Fe I	29
3025.29		Hf II	12

I A	Type	Element	Multiplet No.
3025.40	P	Cr I	27
3025.638		Fe I	198
3025.68		V II	75
3025.70		Zr II	76
3025.75		O II	84
3025.843		Fe I	9
3025.99	P	Fe II	84
3026.18		Zr II	147
3026.373		Co I	77
3026.462		Fe I	30
3026.47		Y II	44
3026.647		Cr II	95
3026.75		A II	120
3026.776	P	Al II	13
3026.781	P	Al II	13
3026.85		Cr II	41
3026.985		Fe III	21
3027.04		Ne II	8
3027.38	P	Fe II	99
3027.46		Fe III	10
3027.600		V II	85
3027.602		Gd II	12
3027.75		Y II	60
3027.92		Pd I	5
3028.04		O IV	5
3028.042		V II	85
3028.05		Zr II	76
3028.125		Cr II	87
3028.436		Cb II	2
3028.608		Rh II	1
3028.66		Ca III	3
3028.82		O II	73
3028.84		Ne II	4
3028.93		A II	84
3028.981		Gd II	26
3029.041		Mn II	10
3029.164		Cr I	26
3029.237		Fe I	56
3029.297		Ni I	56
3029.52		Zr I	22
3029.56		V II	26
3029.681		Fe II	124
3029.730		Ti II	85
3029.83		Sb I	2
3030.149		Fe I	198
3030.214		Y II	79
3030.245		Cr I	27
3030.61	P	Fe I	145
3030.757		Fe I	459
3030.769		Sc I	10
3030.85		Ne II	17
3030.91		Zr II	6
3031.007		V I	74
3031.16		Hf II	11
3031.213		Fe I	198
3031.353		Cr I	27
3031.486		Cr I	117
3031.559		Ce III	1
3031.63		Cr II	87
3031.63	P	Fe II	138
3031.638		Fe I	30
3031.870		Ni I	11
3032.00		Zr II	144
3032.08		O II	83
3032.187		V II	75
3032.44		Ni II	3
3032.50		O II	83
3032.767		Cb II	
3032.845		Gd II	12
3032.85		As I	1
3032.927		Cr II	15
3033.104		Fe I	146
3033.445		Fe II	181
3033.445		V II	123
3033.52		A II	19
3033.591		Mn II	21
3033.821		V II	34
3034.05		Cr II	74
3034.051		Gd II	12
3034.120		Sn I	1
3034.190		Cr I	26
3034.32		O III	20
3034.432		Co I	12
3034.48		Ne II	8
3034.51		Fe I	57
3034.54		Cr II	33
3034.54		F III	3
3034.712		Fe II	84
3034.74		Si III	10
3034.810		Mn II	21

I A	Type	Element	Multiplet No.
3034.95		Cb II	
3034.99		Cr II	42
3035.013		Rh II	4
3035.14		V II	245
3035.25	P	Fe I	506
3035.43		O III	4
3035.781		Zn I	5
3035.802		Fe III	30
3035.98		Ne II	17
3036.07		V II	40
3036.101		Cu I	5
3036.33	P	Zr II	86
3036.39		Zr II	25
3036.50		Zr II	24
3036.59		Y II	68
3036.68		W II	7
3036.784		Ti II	78
3036.986		Fe II	181
3037.044		Cr I	27
3037.26		Si III	10
3037.388		Fe I	9
3037.73		Ne II	8
3037.731		Ce II	181
3037.782		Fe I	31
3037.935		Ni I	25
3037.98		A IV	2
3037.98		Cl II	53
3038.00		V II	246
3038.04		Cr II	154
3038.52		Cr II	41
3038.520		V II	96
3038.59		Zr II	
3038.706		Ti II	85
3038.777		Fe II	84
3039.064		Ge I	2
3039.254		F III	3
3039.322		Fe I	199
3039.51		O II	72
3039.551		Mn II	10
3039.563		Co I	52
3039.65		Ne II	17
3039.67		C II	29
3039.74	P	Cr I	117
3039.746		F III	3
3039.76		O II	72
3039.767		V II	153
3039.780		Cr I	26
3039.92		Sc II	47
3040.34		Gd II	55
3040.428		Fe I	30
3040.603		Mn I	34
3040.812		Co I	50
3040.829		Fe II	123
3040.846		Cr I	27
3040.92		Cr II	65
3040.93		Si III	10
3041.224		Mn I	34
3041.278		Al II	28
3041.42		V II	40
3041.639		Fe I	56
3041.74		Cr II	95
3041.745		Fe I	30
3041.86		V I	
3041.876		W I	5
3042.020		Fe I	30
3042.27		V II	40
3042.481		Co I	10
3042.65		Pt I	5
3042.666		Fe I	30
3042.733		Mn I	34
3042.79		Cr II	47
3043.02		O III	4
3043.067		Fe III	91
3043.124		V I	17
3043.132		Mn II	21
3043.143		Mn I	34
3043.31	P	Fe II	138
3043.356		Mn I	34
3043.439		Fe III	91
3043.54		V II	40
3043.555		V I	17
3043.770		Mn I	34
3043.851		Ti II	78
3043.90		Cr II	48
3044.004		Co I	11
3044.04	P	Co I	78
3044.12		Zr II	26
3044.16		Ne II	17
3044.24		Cr II	154
3044.438		Fe III	

I A	Type	Element	Multiplet No.
3044.567		Mn I	15
3044.843		Fe II	98
3044.936		V I	17
3045.00		Cl II	21
3045.006		Ni I	12
3045.077		Fe I	29
3045.085		Ti II	
3045.313		Fe II	179
3045.36		Y I	9
3045.53		Cr II	48
3045.58		Ne II	8
3045.593		Mn I	34
3045.593		Na II	11
3045.594		Fe I	198
3045.714		Sc II	37
3045.808		Mn I	34
3045.82		Zr I	36
3045.877		Fe III	76
3046.03		Hf II	32
3046.10		A II	
3046.266		Mn II	10
3046.399		Fe III	78
3046.452		W I	5
3046.675		Fe II	179
3046.685		Ti II	47
3046.714		Fe III	92
3046.819		Fe I	315
3046.929		Fe I	198
3047.035		Mn I	34
3047.047		Fe I	457
3047.119		Fe III	80
3047.13		O III	4
3047.160		Rh II	4
3047.201		Fe I	382[illegible]
3047.455		Cr I	164
3047.57		Ne II	8
3047.60	P	Fe II	84
3047.605		Fe I	9
3047.63		Cr II	15
3047.76		Cr II	15
3047.9		O II	82
3048.108		Co I	77
3048.214		V II	123
3048.28		Zr II	144
3048.42		Zr II	65
3048.65		V II	67
3048.766		Ti II	78
3048.864		Mn I	34
3048.888		Co I	11
3048.891		V II	40
3049.011		Fe II	181
3049.027		Mn II	21
3049.18	P	Fe II	109
3049.39		La II	115
3049.44		C II	43
3049.694		W I	9
3049.883		Cr I	27
3050.073		Al I	7
3050.137		Cr II	65
3050.400		V I	74
3050.463		Fe III	10
3050.496		Co I	77
3050.5		Y II	69
3050.57		Ne II	48
3050.661		Mn II	21
3050.735		V II	66
3050.75		Cr II	95
3050.819		Ni I	25
3050.890		V I	16
3050.932		Co I	51
3051.30		W II	6
3051.308		V II	228
3051.924		Ce II	184
3051.975		Ce II	180
3052.07		K III	2
3052.194		V I	15
3052.229		Cr I	164
3052.511		Gd II	9
3052.54		O IV	5
3052.78	P	Fe I	262
3052.929		Sc II	37
3053.065		Fe I	146
3053.20		A II	
3053.27		Y II	68
3053.39		V II	34
3053.443		Fe I	31, 398
3053.570		Gd II	25
3053.65		Cr II	64
3053.65		V I	17
3053.664		Na II	15

I A	Type	Element	Multiplet No.
3053.74		Cl II	14
3053.880		Cr I	26
3053.894		V II	40
3054.02		La II	115
3054.134		Fe III	10
3054.24		V II	67
3054.316		Ni I	25
3054.362		Mn I	15
3054.39		Zr II	51
3054.52		Hf II	8
3054.69		Ne II	8
3054.694		Al I	7
3054.724		Co I	13
3054.82		A III	4
3054.84		Zr II	76
3054.89		V I	16
3054.94		Eu II	7
3054.949		Fe I	263
3055.243		Ce II	201
3055.263		Fe I	55
3055.3		Y II	68
3055.368		Fe II	181
3055.43		Hf II	56
3055.44		Cr II	33
3055.55		Fe III	10
3055.585		Ce III	1
3055.942		V II	123
3056.157		Na II	1
3056.334		V I	17
3056.556		Ce III	9
3056.68		Cr II	48
3056.740		Ti II	47
3056.775		Ce II	121
3056.802		Fe II	109
3056.84		K III	2
3057.08		V II	95
3057.155		Al I	7
3057.214		Ce III	8
3057.22		Zr II	76
3057.395		Ti II	5
3057.446		Fe I	28
3057.575		Ce III	4
3057.638		Ni I	26
3057.80	P	Fe I	29
3057.86		Cr II	65
3058.00		Cl II	14
3058.090		Ti II	47
3058.119		Gd II	57
3058.17		Cr I	164
3058.38		Cr II	48
3058.66		Os I	1
3058.68		O V	6
3059.047		Al I	7
3059.064		Mn II	21
3059.086		Fe I	9
3059.16		Ne II	17
3059.24		C II	47
3059.30		O III	4
3059.41		Cr II	15
3059.521		Cr II	15
3059.741		Ti II	5,47
3059.91		La II	147
3060.023		Fe II	109
3060.048		Co I	77
3060.11		Zr II	6
3060.162		Fe III	92
3060.252		Ru II	6
3060.460		V I	17
3060.531		Sc II	37
3060.545		Fe I	457
3060.63		Cr I	164
3060.93		V I	15
3060.94		A II	
3060.984		Fe I	55
3061.14	P	Cr II	103
3061.33		Zr II	6
3061.59		Cr II	41
3061.652		Cr I	55
3061.822		Co I	11
3061.983		Co I	52
3062.119		Mn I	15
3062.178		V II	113
3062.199		Co I	12
3062.201		Rh II	4
3062.234		Fe II	108
3062.702		V II	34
3062.872		Fe I	456
3063.010		Ce II	185
3063.149		Fe I	102
3063.247		V II	123

I A	Type	Element	Multiplet No.
3063.25		Co I	50
3063.280		Ti II	119
3063.411		Cu I	4
3063.46		O IV	1
3063.502		Ti II	47
3063.56		Ta I	4
3063.58		Zr I	36
3063.63		Zr II	
3063.734		V I	16
3063.814		Fe II	
3063.84		Cr II	32
3063.93		Ni II	3
3063.939		Fe I	147
3064.302		Al I	7
3064.370		Co I	13
3064.372		Na II	6
3064.530		Cb II	
3064.623		Ni I	26
3064.64		Zr II	25
3064.68		Hf II	31
3064.71		Pt I	2
3064.77		A III	4
3065.01		O III	26
3065.067		Cr I	184
3065.106		Sc II	37
3065.20		Zr II	5
3065.30		Pd I	3
3065.315		Fe II	97
3065.61		V II	112
3066.019		Mn I	15
3066.02		Y II	68
3066.158		Al I	7
3066.220		Ti II	5
3066.354		Ti II	5
3066.375		V I	17
3066.487		Fe I	313
3066.51		V I	17
3066.514		Ti II	47
3066.536		Na II	18
3066.69	P	Fe I	456
3066.80		V II	123
3066.92		A II	
3067.104		V II	34
3067.123		Fe I	56
3067.132		Ge I	5
3067.18		Cr II	15
3067.22	P	Cr I	55
3067.23	P	Cr II	15
3067.244		Fe I	28
3067.41		Hf I	4
3067.712		Bi I	1
3067.952		Fe I	315a
3068	P	O VI	2
3068.02		Zr II	5
3068.06		O II	26
3068.175		Fe I	55
3068.32		Zr II	
3068.643		Gd II	12
3068.68		O III	26
3068.757		Fe II	122
3068.897		Ir I	6
3068.927		Fe I	53
3069.26		Y II	43
3069.335		Fe III	1
3069.645		V I	15
3070.072		Fe III	30
3070.12		V II	228
3070.266		Mn I	15
3070.591		Fe II	83
3070.692		Fe II	68
3071.03		Cr II	41
3071.08		Ne II	17
3071.141		Fe II	181
3071.238		Fe III	1
3071.242		Ti II	47
3071.270		Fe II	
3071.35		Cl II	14
3071.58		Cr II	47
3071.583		Ba I	4
3071.653		Fe II	123
3071.66		O IV	1
3071.69	P	Cr I	55
3071.77		V II	250
3071.957		Co I	12
3072.062		Zn I	5
3072.107		Ti II	5
3072.341		Co I	11
3072.47		Cr II	32, 116
3072.54		Ti II	119
3072.565		Gd II	93

I A	Type	Element	Multiplet No.
3072.664		Co I	125
3072.68		Ne II	17,48
3072.88		Hf I	2
3072.971		Ti II	5
3073.126		Mn I	15
3073.244		Fe I	549
3073.25		Cr II	47
3073.520		Co I	51
3073.679		Cr I	184
3073.823		V I	15,17
3073.982		Fe I	313
3074.061		Rh II	1
3074.15		O III	26
3074.157		Fe I	457
3074.334		Na II	9
3074.47		Cr I	55
3074.55		Zr II	105
3074.66		V II	112
3074.665		Al II	27
3074.67		Cr II	73
3074.68		O III	26
3074.91		Cr II	73
3075.043		V II	228
3075.19		O III	26
3075.225		Ti II	5
3075.228		Fe II	68
3075.269		V I	105
3075.32		As I	1
3075.336		Ru II	7
3075.38		Sc II	37
3075.380		Nd II	
3075.422		Gd II	56
3075.474		V II	67
3075.55		Zr II	144
3075.58		V II	228
3075.721		Fe I	28
3075.901		Zn I	1
3075.933		V I	57
3075.95		O III	26
3076.016		V II	34
3076.455		Fe II	181
3076.58		Cr I	55
3076.864		Cb II	2
3076.925		Gd II	10
3077.077		Gd II	25
3077.14		Y II	52
3077.168		Fe II	108
3077.24		Cr II	103
3077.24		Ta I	1
3077.358		Eu II	3
3077.40		A IV	1
3077.59		Lu II	4
3077.79		Cr II	103
3077.831		Cr I	184
3078.014		Fe I	29
3078.15		A III	4
3078.315		Na II	2,8
3078.436		Fe I	146
3078.44	P	Fe II	97
3078.64		Y II	78
3078.645		Ti II	5
3078.698		Fe II	181
3078.948		V II	66
3079.34		Cr II	102
3079.356		Fe II	122
3079.394		Co I	10,49
3079.627		Mn I	15
3079.75		V II	113
3079.84	P	Fe I	102
3080.146		V I	15
3080.333		V I	57
3080.405		Fe II	108
3080.64		Hf II	63
3080.72		Cr I	184
3080.755		Ni I	26
3080.84		Hf I	4
3081.01		V II	112
3081.254		V II	66
3081.30		V II	164
3081.330		Mn I	15
3081.42		La II	115
3081.46		O II	
3081.575		Ti II	119
3081.585		Rh II	5
3081.600		Y II	50
3081.83	P	Fe I	53
3081.993		Gd II	12
3082.010		V I	105
3082.052		Mn I	15
3082.109		V I	17

I A	Type	Element	Multiplet No.
3082.159		Al I	3
3082.16		Y II	68
3082.304		Ce II	105
3082.524		V II	39
3082.56		Sc II	36
3082.614		Co I	10
3082.844		Co I	73
3082.99		A II	120
3083.024		Fe II	97
3083.07	P	Sc II	37
3083.152		Fe I	197
3083.208		V II	112
3083.350		Gd II	10
3083.539		V I	57
3083.62		Cr II	47
3083.65		O III	26
3083.670		Ce II	237
3083.68	P	Fe III	39
3083.742		Fe I	28
3084.007		Gd II	
3084.09		Fe III	40
3084.46		Cr II	71
3084.59		Cr I	184
3084.63		O III	26
3084.819		Ti I	93
3085.05		A II	
3085.089		Ce III	4
3085.34		Zr I	20
3085.36		Cr II	47
3085.47		V II	34
3085.621		Gd II	10
3086.210		V II	66
3086.225		Si III	1
3086.311		Fe III	
3086.393		Co I	50
3086.429		Si III	1
3086.44		Zr II	24
3086.507		V II	39
3086.620		Si III	1
3086.777		Co I	11
3086.83		Co I	76
3086.858		Y II	42
3086.880		Fe III	81
3087.02		Al I	19
3087.065		V I	57
3087.07		Ni II	7
3087.659		Fe III	77
3087.806		Co I	77
3087.90		Cr II	102
3088.027		Ti II	5
3088.04		O III	26
3088.114		V I	56
3088.23		Ne II	24
3088.24		A II	119
3088.28		Zr II	38
3088.523		Al II	20
3089.00		Zr II	25
3089.130		V I	37
3089.204		Gd II	54
3089.388		Fe II	158
3089.401		Ti II	90
3089.596		Co I	10
3089.633		V II	112
3089.649		Fe III	40
3089.75		Cr II	195
3089.954		Gd II	93
3090.051		Ti II	119
3090.137		Ti I	93
3090.209		Fe I	313
3090.251		Co I	77
3090.40		V I	15
3090.44		Zr I	54
3090.772		Fe III	20
3090.94		Cr II	126
3091.076		Mg I	5
3091.30		Zr II	38
3091.437		V I	15
3091.552		V I	15
3091.578		Fe I	28
3091.70		Y I	
3092.058		Gd II	93
3092.22		Cl II	14
3092.26		Hf II	30
3092.519		Sc II	36
3092.716		Al I	3
3092.72		V I	
3092.729		Na II	1
3092.785		Fe I	29
3092.843		Al I	3
3092.91		Ne II	44

I A	Type	Element	Multiplet No.
3092.915		Nd II	
3092.997		Mg I	5
3093.108		V II	1
3093.16	P	V II	39
3093.24		V I	15
3093.41		A II	84
3093.423		Si III	1
3093.48		Cr II	125
3093.481		Rh II	4
3093.53	P	Fe I	102
3093.613		Si III	1
3093.76		Y II	78
3093.792		V I	57
3093.806		Fe I	55
3093.846		Gd II	10
3093.888		Fe I	261
3093.97		Cr II	47
3093.989		Cu I	3
3094.08	P	Fe I	165
3094.08		Ne II	24
3094.156		Fe III	78
3094.172		Cb II	1
3094.196		V II	39
3094.555		Ru II	3
3094.692		V I	56
3094.79		Zr I	36
3094.870		Fe I	315a
3094.94		Cr II	47,86
3094.98		A II	118
3095.07		Zr II	5
3095.22		Cr II	86
3095.270		Fe I	314
3095.716		Co I	49
3095.81		O III	26
3095.82		Zr I	36
3095.859		Cr I	
3095.88		Y II	11
3095.902		V I	57
3096.11		Cr II	126
3096.296		Fe II	97
3096.402		Co I	52
3096.424		Ti II	77
3096.531		Cr I	
3096.72		Cl II	31
3096.740		Rh II	4
3096.77	P	Sc II	6
3096.786		Si III	1
3096.86		Fe III	65
3096.902		Mg I	5
3097.063		Mn I	
3097.118		Ni I	11
3097.15		Ne II	44
3097.186		Ti II	67
3097.415		Fe II	96
3097.45		Eu II	6
3097.46		S IV	1
3097.49	P	Fe I	165
3097.626		Ti II	77
3098.16		Cr II	86
3098.191		Fe I	313
3098.194		Co I	10
3098.476		Nd II	
3098.597		Tm II	8
3098.644		Gd II	11
3098.88		Cr II	86
3098.899		Gd II	10
3098.93	P	Fe III	51
3099.05		Fe III	65
3099.115		Ni I	13
3099.180		Cb II	2
3099.22		Zr II	5
3099.667		Co I	75
3099.898		Fe I	28
3099.968		Fe I	28
3099.97		A II	
3100.304		Fe I	28
3100.31	P	Fe III	51
3100.48	P	Fe III	29
3100.504		Gd II	12
3100.666		Fe I	28
3100.666		Ti I	92,93
3100.838		Fe I	196a
3100.938		V II	39
3101.003		Fe I	313
3101.185		Gd II	93
3101.39		Hf II	12
3101.407		Gd II	76
3101.52	P	Ti II	58
3101.526		Ti I	181
3101.554		Ni I	25

I A	Type	Element	Multiplet No.
3101.557		Mn I	
3101.77		Ti I	181
3101.879		Ni I	40
3101.911		Gd II	10
3102.295		V II	1
3102.36		Ca I	16
3102.405		Co I	49
3102.517		Ti I	181
3102.55	P	Fe III	29
3102.551		Gd II	76
3102.58		Cr II	116
3102.63		A II	
3102.64	P	Fe I	29
3102.71		Fe I	
3102.975		Ti II	58
3103.3		Y II	78
3103.377		Ce II	151
3103.48		Cr II	71
3103.60		V I	56
3103.735		Co I	73
3103.804		Ti II	90
3103.983		Co I	48
3103.994		V I	56
3104.29		Cr II	102
3104.38		A II	118
3104.396		Na II	17
3104.46		Cl III	3
3104.58		La II	17
3104.593		Ti II	90
3104.70		Cr I	163
3104.713		Mg II	6
3104.805		Mg II	6
3104.82		Y II	59
3104.906		V II	39
3105.084		Ti II	67
3105.166		Fe II	82,122
3105.220		Ti I	181
3105.469		Ni I	12
3105.548		Fe II	82
3105.57		Cr I	163
3105.929		Co I	21
3105.973		V II	140
3106.11		V I	56
3106.234		Ti II	67
3106.542		Fe I	196
3106.559		Fe II	68
3106.58		Zr II	63
3106.806		Ti I	92
3106.829		V II	139
3106.974		Ce III	4
3107.044		Co I	49
3107.142		V I	57
3107.387		Sc II	6
3107.388		Ca I	16
3107.468		Ti I	181
3107.529		Sc II	33
3107.540		Co I	125
3107.58		Cr II	125
3107.586		Ru II	3
3107.714		Ni I	12
3107.774		Mn I	38
3107.950		Fe III	29
3108.230		Gd II	54
3108.36		Zr I	38
3108.360		Gd II	93
3108.46		La II	16
3108.511		Sc II	36
3108.635		Mn I	38
3108.66		Cr II	55
3108.704		V II	39
3108.78	P	Fe III	29
3108.82		A II	18
3108.85		Fe III	12
3108.927		Ti II	77
3109.05		Fe I	165
3109.11		Hf II	10
3109.3		Y II	57
3109.32		Fe III	8
3109.336		Cr I	163
3109.375		V II	186
3109.506		Co I	50
3109.59		Fe III	1
3109.75		A II	
3109.92	P	Ti II	58
3110.021		Co I	109
3110.052		Fe III	39
3110.07		V II	139
3110.095		Ti II	77
3110.278		Ce II	152
3110.516		Ce III	4

λ A	Type	Element	Multiplet No.
3110.52		Zr II	105
3110.620		Ti II	67
3110.65		Y II	50,78
3110.708		V II	1
3110.821		Co I	11
3110.85		Fe III	29
3110.860		Cr I	163
3110.87		Hf II	46
3110.87		Zr II	5
3111.15		Zr II	24
3111.283		Ti I	181
3111.339		Co I	73
3111.609		Fe III	8
3111.686		Fe I	260
3111.95		Cr II	55
3112.05		Y II	4
3112.050		Ti II	67
3112.079		Fe I	455
3112.125		Mo I	2
3112.202		Ce II	138
3112.482		Ti I	92
3112.63		La II	156
3112.81	P	Cr II	125
3112.925		V I	56
3113.172		Gd II	93
3113.31	P	Fe I	161
3113.473		Co I	48
3113.50		Zr I	37
3113.560		V II	174
3113.579		F III	1
3113.59		Cr II	186
3113.67	P	Fe I	165
3113.71		O II	14
3114.05		Pd I	4
3114.092		Ti I	181
3114.118		Co I	49
3114.124		Ni I	24
3114.295		Fe II	82
3114.45		Y II	49,58
3114.680		Fe II	82
3115.088		Ti II	58
3115.16		V II	111
3115.172		Nd II	
3115.28		Cr II	54
3115.352		Fe II	
3115.465		Mn I	38
3115.492		Fe II	96
3115.51		Cr I	163
3115.65		Cr II	46
3115.669		F III	1
3115.73		O III	12
3115.73		Zr II	75
3116.02		V II	139
3116.11		V II	139
3116.141		Nd II	
3116.250		Fe I	165
3116.39	P	Fe I	261
3116.590		Fe II	82
3116.633		Fe I	28
3116.711		Ni I	95
3116.76		Cr II	126
3116.78		V II	237
3116.95		Hf II	33
3117.28		Cr II	46
3117.455		Ti I	92
3117.505		Fe II	226
3117.63		Fe I	29
3117.656		Ca I	16
3117.669		Ti II	67
3117.75		S IV	1
3117.899		Ti I	92
3117.974		Gd II	76
3118.02		Ne II	16
3118.130		Ti I	181
3118.14		Cr II	55
3118.249		Co I	11
3118.376		V II	1
3118.56	P	Ni I	94
3118.600		Gd II	93
3118.636		Co I	12
3118.652		Cr II	5
3118.74	P	Fe II	121
3118.75		Fe III	51
3118.824		Ti II	27
3119.04	P	Fe I	315a
3119.08		Gd II	10
3119.246		Cr I	163
3119.32		V II	110
3119.336		Gd II	10
3119.495		Fe I	194

λ A	Type	Element	Multiplet No.
3119.60		As I	1
3119.66		Ca III	4
3119.660		Fe II	
3119.706		Cr I	183
3119.725		Ti I	137
3119.800		Ti II	67
3119.82		Cl II	20
3119.837		Rh II	8
3119.941		Gd II	11
3120.023		Fe II	96
3120.03	P	Fe I	161
3120.03		Fe III	29
3120.10		Co I	74
3120.181		Gd II	76
3120.24		Fe III	1
3120.371		Cr II	5
3120.435		Fe I	194
3120.72	P	Zr II	50
3120.726		V II	138
3120.74		Zr I	37
3120.84		Fe III	29
3121.05		Cr II	72
3121.08		Fe III	
3121.138		V II	1
3121.415		Co I	9
3121.515		F III	1
3121.548		Ce III	2
3121.566		Co I	11
3121.599		Ti II	4
3121.62		Cl II	20
3121.71		O III	12
3121.749		V I	56
3121.76		Fe I	102
3121.760		Gd II	76
3121.84		Cr II	72
3121.97		Cr II	55
3122.065		Ti II	58
3122.542		Sc II	46
3122.596		Cr II	54
3122.61		Zr II	51
3122.62		O II	14
3122.665		Fe I	314
3122.782		Au I	1
3122.887		V II	173
3122.954		Sc II	39
3123.074		Ti I	67
3123.18		Fe III	
3123.29		Ca II	10
3123.353		Fe I	164
3123.715		Fe II	
3123.72		Cl II	20
3123.769		Ti I	181
3123.989		Gd II	11
3124.02		O II	14
3124.08		Fe I	165
3124.250		Gd II	10
3124.762		F III	1
3124.817		Ge I	1
3124.978		Cr II	5
3125.01		V II	84
3125.02		Cr II	70
3125.03	P	Fe I	53
3125.15		Ca II	10
3125.21		Zr II	24
3125.282		V II	1
3125.46		Cr II	55
3125.553		Ti I	192
3125.653		Fe I	28,160
3125.656		Ti I	192
3125.668		Hg I	3
3125.68	P	Fe I	194
3125.79		Cr II	186
3125.92		Zr II	5
3126.02		Sc II	39
3126.16		Y II	78
3126.175		Fe I	
3126.215		V II	1
3126.25		Si III	11
3126.27		Hf II	7
3126.79		V II	122
3126.84	P	Fe I	260
3127.252		Co I	26
3127.526		Cb II	
3127.530		Ce II	150
3127.684		Ti I	180
3127.883		Ti II	121
3128.286		Sc II	39
3128.288		V II	84
3128.560		Gd II	76
3128.640		Ti I	92,192

λ A	Type	Element	Multiplet No.
3128.640		Ti II	121
3128.686		V II	83
3128.699		Cr II	5
3128.789		Y II	51
3128.79		Zr II	38
3128.901		Fe I	54
3129.013		Fe II	96
3129.04		Fe III	8
3129.075		Ti I	192
3129.16		Zr II	23
3129.18	P	Fe I	161
3129.314		Ni I	12
3129.334		Fe I	52
3129.368		Na II	2
3129.44		O II	14
3129.481		Co I	74
3129.696		Gd II	93
3129.76		Zr II	5
3129.933		Y II	51
3129.955		Gd II	76
3130.05		Zr I	37
3130.175		Ti I	180
3130.262		V II	1
3130.416		Be II	1
3130.561		Fe II	66
3130.73		Eu II	
3130.780		Cb II	1
3130.804		Ti I	
3130.804		Ti II	4
3130.812		Gd II	76
3131.064		Be II	1
3131.11		Zr I	37
3131.211		Cr I	183
3131.257		Tm II	
3131.54		Cr II	53,55
3131.719		Fe II	107
3131.81		Hf I	3
3131.829		Co I	48
3131.845		Hg I	2
3132.058		Cr II	5
3132.06		Zr I	37
3132.12	P	Cr II	125
3132.218		Co I	7
3132.22		Ne II	13
3132.514		Fe I	578
3132.591		Mo I	3
3132.793		V II	122
3132.820		Cr I	183
3132.86		O III	12
3133.048		Fe II	82
3133.094		Gd II	9
3133.096		Sc II	39
3133.329		V II	1
3133.49		Zr II	63
3133.603		Nd II	
3133.852		Gd II	76
3133.886		Tm II	4
3133.96	P	Fe I	161
3134.08	P	Fe I	160
3134.108		Ni I	25
3134.111		Fe I	28
3134.15	P	Fe I	29
3134.17	P	Fe II	121
3134.208		F III	1
3134.32		O II	14
3134.33		Cr II	94
3134.654		Ti I	91
3134.72		Hf II	5
3134.819		Mn II	15
3134.82		O II	14
3134.897		Nd II	
3134.90		A IV	1
3134.928		V II	122
3135.034		Gd II	11
3135.069		Ti I	180
3135.17		Y II	11
3135.35		Cr II	124
3135.360		Fe II	82
3135.483		Na II	3
3135.507		Mn II	15
3135.74		Cr II	94
3135.80		Fe III	77
3135.82		Ne II	3
3135.863		Fe I	194
3135.875		Al II	19
3135.91		Cr I	183
3136.00		S III	13
3136.003		Ca I	15
3136.028		Ti I	91
3136.08	P	Fe I	160

I A	Type	Element	Multiplet No.
3136.17		Fe I	
3136.315		Mn II	15
3136.43		Fe III	39
3136.465		Mo II	2
3136.503		V II	122
3136.55		A II	
3136.680		Cr II	5
3136.726		Co I	8
3136.77		Ti II	27
3136.95		Zr I	54
3136.999		Co I	48
3137.328		Co I	10
3137.352		Ti I	91
3137.454		Co I	108
3137.55		Cr II	54
3137.66		A II	71
3137.755		Co I	49
3137.940		Gd II	54
3138.05		V II	205
3138.094		Gd II	10
3138.203		Cr I	183
3138.207		Fe II	227
3138.40	P	Fe I	53
3138.44		O II	14
3138.46		Sc II	39
3138.66		Zr II	5
3139.02		A II	47
3139.10	P	Fe I	161
3139.34		Cl III	3
3139.39		Pt I	2
3139.60	P	Fe I	161
3139.661		Fe I	155
3139.67		Hf II	6
3139.729		Sc II	39
3139.733		V II	122
3139.77		O II	14
3139.79		Zr I	56
3139.87		Ti I	180
3139.908		Fe I	
3139.91		Cr II	54
3139.947		Co I	9
3139.98	P	Co I	73
3140.04	P	Ti II	27
3140.08		Fe III	94
3140.21		Cr II	124
3140.272		Rh II	8
3140.385		Fe I	578
3140.67		Cr II	124
3140.692		Fe II	227
3140.715		Co I	75
3140.77		Hf II	31
3140.782		Ca I	15
3141.07		V II	205
3141.164		Ca I	15
3141.247		Ce III	2
3141.35		Ne II	47
3141.486		V II	152
3141.537		Ti I	66
3141.670		Ti I	192
3141.80		Cr II	175
3141.891		Cr I	116
3142.183		V II	172
3142.22		Fe III	1
3142.220		Fe II	7
3142.312		Ce II	46
3142.445		Fe I	164
3142.484		V II	52
3142.670		Mn I	
3142.74		Cr II	85
3142.76		La II	31
3142.777		F III	4
3142.888		Fe I	144
3142.900		Gd II	76
3142.97		Cr II	125
3143.131		Gd II	25
3143.16	P	Ti I	28
3143.242		Fe I	7
3143.350		Ti I	180
3143.36		Fe III	13
3143.477		V II	122
3143.657		Ru II	2
3143.68		Cr II	53
3143.68	P	Ti II	37
3143.74		Ne II	24
3143.756		Ti II	4
3143.91		Cr II	94
3143.956		Ce III	2
3143.990		Fe I	578
3144.37		Y II	49
3144.409		Cr I	92

I A	Type	Element	Multiplet No.
3144.488		Fe I	161
3144.68		O V	2
3144.700		V II	122
3144.730		Ti II	111
3144.74	P	Ti II	10
3144.751		Fe II	82
3144.92	P	Fe I	195
3145.00		Gd II	10
3145.022		Co I	50
3145.057		Fe I	455
3145.10		Cr II	5
3145.121		Ni I	7
3145.283		Ce II	120
3145.32		Hf II	2
3145.337		V II	1
3145.402		Ti II	10,111
3145.405		Cb II	5
3145.46	P	Fe I	160
3145.515		Ti I	91
3145.516		Gd II	76
3145.536		F III	1
3145.719		Ni I	11
3145.77		Cr II	85
3145.971		V II	1
3146.226		V II	138
3146.407		Ce II	70
3146.47		A II	49
3146.475		Fe I	160
3146.748		Fe II	67
3146.818		V II	138
3146.878		Gd II	76
3146.91		Sc II	39
3146.962		F III	1
3147.05		Ce III	7
3147.060		Co I	10
3147.19	P	Cr II	54
3147.227		Cr II	5
3147.38		Si III	11
3147.792		Fe I	455
3147.84		Cr II	93
3147.86		Cl II	10
3147.931		Rh II	8
3148.033		Ti II	4
3148.179		Mn I	19
3148.24		A II	
3148.420		Fe I	194
3148.445		Cr I	115
3148.46	P	Fe I	161
3148.738		V II	249
3148.81		Zr I	37
3149.12		Cr II	84
3149.267		Na II	4
3149.310		Co I	9
3149.50	P	Fe I	453
3149.56		Si IV	2
3149.83		Cr II	54
3149.87		W II	5
3150.11		Cr II	54
3150.20	P	Fe I	161
3150.301		Fe I	578a
3150.568		V I	
3150.738		Ca I	15
3151.036		Tm II	
3151.11		Ti I	28
3151.16		Ne II	16
3151.259		Ni I	
3151.280		Ca I	15
3151.31		W II	16
3151.319		V II	138
3151.353		Fe I	311
3151.500		Rh II	2
3151.86		Fe III	
3151.867		Fe I	7
3152.14	P	Ti II	27
3152.21		Cr II	71
3152.251		Ti II	10
3152.525		Sm II	
3152.707		Co I	73
3152.881		Cr I	116
3153.064		Fe I	99,452
3153.200		Fe I	161
3153.322		Fe I	160
3153.54		Cr I	200
3153.549		V I	
3153.692		Co I	7
3153.80		A II	118
3154.04		Cr II	53
3154.10		Cr II	69
3154.11	P	Fe I	53

I A	Type	Element	Multiplet No.
3154.195		Ti II	10
3154.201		Fe II	66
3154.387		F III	4
3154.41	P	Fe I	100
3154.510		Fe I	161
3154.585		Ni I	78
3154.66	P	Cr II	54
3154.678		Co I	108
3154.794		Co I	73
3154.80		V II	249
3154.82		Ne II	14
3155.12	P	Fe I	161
3155.149		Cr I	115
3155.293		Fe I	193
3155.409		V II	51
3155.50	P	Ti II	27
3155.63	P	Ti II	37
3155.670		Ti II	10
3155.68		Zr II	63
3155.704		Ce II	217
3155.80	P	Fe I	192a
3155.91	P	Ti II	121
3155.95		Zr II	49
3155.950		Fe II	67
3156.11		F III	4
3156.222		V I	
3156.248		Os I	4
3156.275		Fe I	578
3156.464		Fe I	454
3156.532		Gd II	11
3156.59		Pt I	2
3156.68		Hf I	5
3157.00		Zr II	23
3157.040		Fe I	160
3157.15	P	Fe I	144
3157.344		Tm II	8
3157.397		Ti II	4
3157.44	P	Sc II	32
3157.52		Cr II	93
3157.82		Zr I	36,55
3157.88		Fe I	164
3157.900		V II	50
3157.992		Fe I	159
3158.03		Cr II	70
3158.156		Mo I	2
3158.21	P	Fe I	160
3158.293		Co I	12
3158.32	P	Fe II	95
3158.772		Co I	10
3158.869		Ca II	4
3158.99		Fe I	452
3159.10		Cr II	5
3159.12		Zr II	126
3159.25	P	Fe I	259
3159.254		Rh II	2
3159.32	P	Fe II	120
3159.365		V II	83
3159.521		Ni I	11
3159.59		Cr I	92
3159.662		Co I	9,26
3159.86		Cr II	54
3160.03		W II	8
3160.09		Ti I	28
3160.11		Cr II	54
3160.200		Fe I	578
3160.342		Fe I	192a
3160.52		Cl II	
3160.60		Y II	57
3160.61		Cr I	115
3160.658		Fe I	155
3160.69		Gd II	11
3160.77	P	Fe I	159
3160.781		V II	65,138
3160.92	P	Fe I	160
3161	P	N V	2
3161.01		Zr II	104
3161.039		Mn I	19
3161.205		Ti II	10
3161.313		V II	151
3161.369		Gd II	10
3161.370		Fe I	52
3161.38		A II	97
3161.44		Cl II	11
3161.45		A II	
3161.55	P	Fe I	195
3161.638		Gd II	25
3161.652		Co I	73
3161.66	P	Ti II	27
3161.755		Ti II	10
3161.945		Fe II	7

I A	Type	Element	Multiplet No.
3161.949		Fe I	160
3162.284		Rh II	1
3162.335		Fe I	159,310
3162.46		Cr II	46
3162.57		Hf I	2
3162.570		Ti II	10
3162.61		Hf II	30
3162.714		V II	83
3162.764		Gd II	54
3162.799		Fe II	120
3163.024		V II	84
3163.091		Fe II	7
3163.403		Cb II	1
3163.61		A II	118
3163.731		Na II	7
3163.756		Cr I	115
3163.76		V II	249
3163.77	P	Cr II	123
3163.86	P	Fe II	79
3163.93		Cr II	69
3164.06		Cr I	200
3164.154		Ce II	69
3164.166		Ni I	79
3164.26		Fe II	79
3164.28		Cr II	46
3164.308		Fe I	163
3164.32		Zr II	50
3164.46		Ne II	13
3164.48		Cr II	115
3164.618		Ca I	14
3164.67		Fe III	8
3164.82		V II	8
3164.91		Ti II	
3165.005		Fe I	155
3165.08	P	Fe I	194
3165.16	P	Fe I	100
3165.24	P	Ti II	37
3165.31		A II	
3165.45		Zr II	63
3165.508		Ni I	21
3165.51		C II	9
3165.70		Ne II	13
3165.72		Si IV	2
3165.86	P	F III	1
3165.860		Fe I	160
3165.89		V II	84
3165.94		Mg II	14
3165.957		Fe II	
3165.98		Zr II	5
3165.99		C II	9
3166.22	P	Fe II	79
3166.24	P	Fe I	155
3166.29		Zr II	48
3166.39		V II	84
3166.435		Fe I	259
3166.59	P	Fe I	100
3166.670		Fe II	6
3166.948		Rh II	5
3166.98	P	Fe I	455
3167.420		V II	217
3167.49		V II	236
3167.54		Fe III	28
3167.78	P	Fe I	99
3167.853		Fe II	66
3167.907		Fe I	578
3167.94	P	Fe II	82
3167.95		C II	9
3168.060		Co I	108
3168.127		V II	8
3168.21		Fe III	94
3168.519		Ti II	10
3168.86		Fe I	160
3168.94	P	Fe I	160
3168.98		Mg II	14
3169.09	P	Fe I	813
3169.183		Ce II	74
3169.20		Cr II	123
3169.21		V II	65
3169.30		Ne II	16
3169.58		Cr I	115
3169.58	P	Fe I	161
3169.68		A II	47
3169.766		Co I	109
3169.85		Cr II	173
3169.854		Ca I	14
3169.875		Sm II	31
3170.16		C III	8
3170.208		V II	217
3170.23		Cl II	
3170.333		Mo I	3

I A	Type	Element	Multiplet No.
3170.337		Fe II	6
3170.40		Sc II	32
3170.715		Ni I	78
3171.016		Fe II	
3171.09		Gd II	10
3171.14		N III	
3171.353		Fe I	52,548
3171.615		Ce II	99
3171.659		Fe I	160
3171.68		La III	1
3171.739		V II	217
3172.067		Fe I	99,193
3172.08		Cr II	71
3172.11	P	Fe I	100
3172.169		Gd II	129
3172.230		V II	249
3172.30	P	Fe I	312
3172.731		Ti I	65
3172.79		Mg II	13
3172.828		Tm II	8
3172.94		Hf I	5
3172.97		N III	
3173.07		Y II	51
3173.140		Co I	48
3173.40		Fe I	333
3173.56		Co I	72
3173.58		Cr II	83
3173.58		Ne II	13
3173.607		Eu II	3
3173.608		Fe I	333
3173.66		Cl II	
3173.663		Fe I	101
3173.678		Rh II	5
3174.077		V II	84
3174.09		Fe III	38
3174.125		F III	2
3174.140		Co I	138
3174.22	P	Fe I	578
3174.531		V II	217
3174.725		F III	2
3174.80		Ti II	
3174.88		La II	157
3174.905		Co I	71
3175.046		Sn I	1
3175.077		Fe II	157
3175.16		P V	1
3175.317		Ru II	2
3175.447		Fe I	155
3175.66		Ti II	120
3175.84		Mg II	13
3175.97		Fe I	333
3175.97		W II	7
3176.00		Fe III	38
3176.16		Ne II	16
3176.292		Ni I	77
3176.366		Fe I	258
3176.602		W I	5
3176.70	P	Sc II	32
3176.85		Hf II	8
3176.86		Fe III	38
3177.060		Ru II	2
3177.137		Ce II	103
3177.22		W II	6
3177.260		Fe II	79
3177.266		Co I	
3177.490		Gd II	129
3177.52	P	Fe I	159
3177.531		Fe II	82
3177.61	P	Fe II	95
3177.65	P	Fe II	79
3177.696		V II	217
3177.80		O IV	7
3177.90		Cr II	40
3177.96	P	Fe I	159
3178.015		Fe I	156
3178.03		Fe III	38
3178.10		Zr II	63
3178.125		Sm II	21
3178.495		Mn I	19
3178.545		Fe I	454
3178.630		Ti II	120
3178.79		Cr II	173
3178.970		Fe I	192a
3179.055		Na II	7
3179.08		Fe III	38
3179.283		Cr I	92
3179.291		Ti I	65
3179.332		Ca II	4
3179.415		V II	217
3179.42		Y II	10

I A	Type	Element	Multiplet No.
3179.44		W II	7
3179.45		Cr II	82
3179.479		Fe I	52
3179.504		Fe II	157
3179.538		Fe I	
3180.164		Fe II	157
3180.17	P	Fe III	38
3180.199		Th II	4
3180.223		Fe I	155
3180.225		Ti II	120
3180.290		Cb II	5
3180.290		Co I	196
3180.521		Ca I	14
3180.701		Cr I	
3180.72		O IV	7
3180.73		Cr II	9
3180.756		Fe I	7
3180.98	P	O IV	7
3181.05		A II	47
3181.275		Ca II	4
3181.428		Cr II	9
3181.522		Fe I	258
3181.58		Zr II	63
3181.740		Ni I	78
3181.84		Ti II	122
3181.85		Fe I	333
3181.922		Fe I	155,505
3181.94		Zr II	48
3182.076		Fe I	159,333
3182.118		Co I	73
3182.42		Y II	49
3182.57		Ti II	122
3182.59		V II	217
3182.674		V II	150
3182.86		Zr II	23
3182.970		Fe I	100
3183.038		Ni I	78
3183.115		Fe II	7
3183.251		Ni I	78
3183.26	P	Zr II	105
3183.325		Cr II	82
3183.406		V I	14
3183.523		Ce II	216
3183.58	P	Fe I	192a
3183.916		Sm II	
3183.96		V I	14
3183.982		V I	14
3184.09		Ti II	3
3184.36		Cr II	123
3184.367		Ni I	11
3184.43	P	Fe II	67
3184.631		Fe I	155,162
3184.896		Fe I	7
3185.095		Fe II	67
3185.16		S III	13
3185.16		Si III	8
3185.315		Fe II	7
3185.396		V I	14
3185.72		O IV	7
3186.01		Si III	
3186.10		V II	64
3186.126		Ce II	167
3186.19		A II	48
3186.350		Co I	8
3186.451		Ti I	27
3186.740		Fe II	6
3186.75		Cr II	69
3186.82	P	Fe I	100
3186.86		V II	63
3187.006		Sm II	21
3187.16	P	Fe I	333
3187.216		Sm II	13,40
3187.294		Fe II	120
3187.592		Mo II	2
3187.60		Ne II	3
3187.68	P	Fe I	52
3187.717		V II	8
3187.743		He I	3
3187.787		Sm II	31
3187.889		Rh II	5
3188.011		Cr I	92
3188.10		V II	49
3188.17	P	O IV	7
3188.377		Co I	74
3188.522		V II	8
3188.567		Fe I	159
3188.603		Rh II	8
3188.65	P	O IV	7
3188.74		Ne II	14
3188.819		Fe I	159

I A	Type	Element	Multiplet No.
3188.95		Si II	
3189.04		Cl II	65
3189.24		W II	6,10
3189.52		Ti II	120
3189.638		Ce II	97
3189.74		Fe III	55
3189.752		Co I	9
3189.76		V II	83
3189.783		Na II	4
3189.85		Cr II	123
3190.02		Fe I	259
3190.403		Sc II	42
3190.651		Fe I	548
3190.686		V II	8
3190.69		Cr II	174
3190.81		Fe II	
3190.825		Fe I	548
3190.84	P	Fe II	120
3190.86		Ne II	13
3190.874		Ti II	26
3191.005		Sc II	42
3191.044		Gd II	129
3191.096		Cb II	1
3191.11		Fe I	258
3191.180		Fe I	452
3191.23		Zr I	19
3191.297		Co I	7
3191.374		Fe II	79
3191.39		La II	157
3191.41	P	Fe I	682
3191.45		Cl III	3
3191.577		W I	5
3191.659		Fe I	8
3191.875		Ni I	125
3191.93		Zr II	50
3191.994		Ti I	27
3192.059		Fe II	66
3192.12		Cr I	13
3192.220		Co I	72
3192.26		Ti II	25
3192.417		Fe I	100,711
3192.68		Ti II	120
3192.699		V II	83
3192.799		Fe I	155
3192.84	P	Fe I	452
3192.917		Fe II	6
3193.014		Sm II	
3193.02		La II	45
3193.10		Si II	
3193.164		Co I	26
3193.174		Gd II	54
3193.200		V II	83
3193.214		Fe I	7
3193.314		Fe I	159
3193.41		Cr II	52
3193.48		Y II	48
3193.53		Hf II	2
3193.74	P	Fe I	682
3193.75	P	Ni I	92
3193.76	P	Fe II	79
3193.809		Fe II	6
3193.85	P	Fe II	67
3193.969		Mo I	3
3193.97		V II	49
3194.03	P	Fe I	156
3194.099		Cu I	3
3194.19		Hf II	10
3194.25		A II	46
3194.26		Ti II	120
3194.422		Fe I	155
3194.56		Ti II	120
3194.61		Ne II	16
3194.63		Cr II	70
3194.75		O IV	7
3194.76	P	Ni I	108
3194.76		Ti II	
3194.825		Ce II	217
3194.983		Cb II	1
3195.50		V II	
3195.573		Ni I	12
3195.62		Y II	10
3195.63		Hf II	45
3195.717		Ti II	25
3195.994		Ti II	46
3196.070		Fe II	7
3196.147		Fe I	333
3196.182		Sm II	40
3196.37	P	Cr I	79
3196.40		Cr II	9,115
3196.50		Si III	
3196.532		Gd II	9
3196.574		V II	62
3196.63	P	Fe II	95
3196.930		Fe I	155
3196.96		Cr II	9
3197.00		Fe I	8
3197.08		Zr II	126
3197.113		Ni I	24
3197.12		Cr II	9
3197.518		Ti II	3
3197.53		Fe I	711
3197.574		V II	150
3198.00		Cr II	
3198.012		V I	14
3198.112		Cr I	91
3198.266		Fe I	258
3198.42		Y II	39
3198.62		Ne II	13
3198.660		Co I	26
3198.726		Ti I	191
3198.81		Fe III	6
3198.88	P	Ne II	13
3198.917		Ir I	7
3199.279		Ce II	106
3199.322		Co I	9
3199.34		Ti I	191
3199.342		Ni I	
3199.37		Sc II	42
3199.43		Ti I	191
3199.50	P	Fe I	7
3199.53		O IV	7
3199.530		Fe I	156
3199.54		Si II	
3199.87		Cr II	101
3199.915		Ti I	27
3199.93	P	Fe I	156
3199.99		Hf II	55
3200.28		Y II	10
3200.423		Ni I	23
3200.45		Cr II	114
3200.454		Gd II	129
3200.475		Fe I	155,162
3200.67		Zr II	37
3200.790		Fe I	8
3200.95		O III	31
3201.24	P	Cr I	79
3201.26		Cr II	114
3201.58		V II	
3201.594		Ti I	90
3201.714		Ce II	76
3201.891		Fe I	159
3201.90		Fe III	6
3201.95		K III	5
3201.97	P	Cr I	79
3202.142		Ni I	94
3202.381		V I	14
3202.52		Cr II	173
3202.535		Ti II	26
3202.562		Fe I	547
3202.66	P	Fe I	52
3202.711		V II	62
3202.740		F II	8
3203.026		Co I	9
3203.05		Cl II	
3203.104		He II	1
3203.33		Y II	10
3203.39		Al I	20
3203.435		Ti II	3
3203.509		Fe II	79
3203.53		Cr II	46
3203.58		Ti I	26
3203.67		Hf II	21
3203.741		Fe II	196
3203.828		Ti I	27
3203.89		Si II	7
3204.06		P V	1
3204.196		V I	13
3204.34		A II	71
3204.36		Zr II	63
3204.55	P	Cr I	79
3204.76		Fe III	6
3204.870		Ti I	90
3205.03		A II	133
3205.11		Cr II	114
3205.168		Ti I	26
3205.400		Fe I	155
3205.582		V I	73
3205.64	P	Ti II	46
3205.848		Ti I	26
3205.990		Ti II	26
3206.16		V II	
3206.344		Ti I	179
3206.350		Cb II	5
3206.466		Gd II	129
3206.77		Hf II	56
3206.825		Ti I	179
3206.908		Mn I	14
3206.952		Ni I	94
3206.98		Fe III	6
3207.092		Fe I	159
3207.12	P	O III	31
3207.185		Sm II	2
3207.248		W I	9
3207.297		Rh II	1
3207.337		Ti I	90
3207.410		V I	14
3207.61		A II	132
3207.649		Fe I	382
3207.897		Ti I	179
3208.02		Cr II	114
3208.13		La II	
3208.231		Cu I	3
3208.32		Zr II	4
3208.345		V II	8
3208.470		Fe I	711
3208.607		Ti II	120
3208.62		Cr II	9
3208.838		Mo I	2
3208.91		Ni II	2
3208.99		Ne II	14
3209.030		Ti I	179
3209.115		Fe I	97
3209.13		La II	114
3209.21		Cr II	9
3209.297		Fe I	333,711
3209.34		K III	5
3209.38		Ne II	16
3209.603		Fe II	137
3209.64		O IV	7
3209.80		Co I	70
3209.912		Ni I	94
3209.930		Ca I	13
3210.04		Si II	7
3210.219		Co I	106
3210.230		Fe I	159
3210.449		Fe II	6
3210.52		Si III	
3210.62		Cr I	13
3210.825		Tm II	4
3210.830		Fe I	156
3210.98		Zr II	63
3211.01		Co I	154
3211.07		Ti I	191
3211.072		Fe II	95
3211.309		Cr I	220
3211.494		Fe I	162
3211.693		Fe I	711
3211.734		Sm II	
3211.872		Fe I	98,711
3211.947		Rh II	6
3211.989		Fe I	158
3212.02		Zr I	19
3212.121		Ir I	8
3212.186		Na II	4
3212.274		Gd II	54
3212.40		Y II	67
3212.434		V I	73
3212.53		Cr II	81
3212.54		A II	47
3212.56		La II	122
3212.70	P	Ti II	9
3212.85		Zr II	49
3212.884		Mn I	14
3212.91		Cr II	114
3213.145		Ti I	90,191
3213.145		Ti II	3
3213.311		Fe II	6
3213.423		Ni I	91
3213.46		Cr II	153
3213.59		Ti II	120
3213.70		Ne II	13
3213.771		Fe I	452
3213.972		F III	2
3214.044		Fe I	156,711
3214.059		Ni I	93
3214.07	P	Fe I	158
3214.125		Sm II	25
3214.14		Ti II	84
3214.19		Zr II	3
3214.240		Ti I	27

I A	Type	Element	Multiplet No.
3214.38		Ne II	14
3214.396		Fe I	7
3214.624		Fe I	143
3214.750		Ti II	3
3214.750		V II	8
3215.145		Ca I	13
3215.262		Sm II	40
3215.334		Ca I	13
3215.375		V I	13
3215.578		W I	5
3215.595		Cb II	1
3215.60		Fe III	6
3215.637		Fe I	332
3215.940		Fe I	156
3215.97		O III	31
3216.06	P	Fe I	682
3216.08		O II	107
3216.203		Ti I	90
3216.31	P	O IV	7
3216.55		Cr II	82
3216.70		Y II	10
3216.75		A II	
3216.76		O II	107
3216.821		Ni I	93
3216.850		Sm II	13
3216.88	P	Ti II	36
3216.946		Mn I	3
3216.996		Co I	70
3217.056		Ti II	2
3217.12		La II	156
3217.121		V I	14
3217.121		W II	38
3217.30		Hf II	4
3217.380		Fe I	157
3217.44		Cr II	9
3217.53	P	Fe I	254
3217.70		A II	132
3217.830		Ni I	91
3217.942		Ti I	179
3218.10		O II	107
3218.20		Hf II	78
3218.21		Ne II	13
3218.26	P	Ti II	46
3218.270		Ti II	84
3218.34		Fe III	87
3218.44	P	Ti II	46
3218.614		Sm II	
3218.68		Zr II	35
3218.683		Ti I	90
3218.70		Cr I	92
3218.869		V I	72
3218.944		Ce II	75
3218.98		Pd I	2
3219.13		Cr II	140
3219.150		Co I	8
3219.212		Ti I	179
3219.32		P III	4
3219.37	P	Fe I	308
3219.58		Fe I	156
3219.60	P	Fe I	254
3219.616		Cr I	220
3219.77	P	Fe I	8
3219.79		Cr II	63
3219.806		Fe I	158
3219.811		Ni I	94
3220.467		Ti II	9
3220.62		Co I	152
3220.66		Hf II	30
3220.772		Ir I	5
3220.835		Fe II	106
3221.151		Ti I	26
3221.171		Ce II	215
3221.273		Ni I	185
3221.378		Ru II	3
3221.380		V II	109
3221.381		Ti I	179
3221.64		A II	46
3221.652		Ni I	8
3221.76	P	Ti II	46
3221.936		Fe I	156
3221.978		Ru II	7
3222	P	O V	5,9
3222.05	P	Fe I	451
3222.069		Fe I	156
3222.42		A II	132
3222.48		Zr II	104
3222.741		Ti I	26
3222.843		Ti II	2
3223.08	P	Fe I	682
3223.273		Fe I	51

I A	Type	Element	Multiplet No.
3223.332		Cb II	5
3223.444		Fe II	
3223.519		Ti I	179
3223.534		Ni I	92,94
3223.740		Gd II	10
3223.853		Fe I	27
3224.05	P	Fe I	920
3224.241		Ti II	84
3224.297		Gd II	92
3224.632		Co I	71
3224.761		Mn I	3
3224.82		Ne II	43
3224.86	P	Fe II	178
3225.020		Ni I	39
3225.17		Y II	39
3225.39		Cr II	140
3225.44		Cr II	45
3225.460		Gd II	
3225.478		Cb II	1
3225.607		Fe I	192,920
3225.789		Fe I	155
3225.896		Ca I	13
3225.976		Na II	17
3226.00		A II	46
3226.034		Mn I	14
3226.106		V I	14
3226.128		Ti I	179
3226.129		Ca I	13
3226.240		Ti I	27
3226.318		Gd II	75
3226.36		Cr II	114
3226.378		Fe II	178
3226.55		Cr I	25
3226.727		Fe I	8
3226.771		Ti II	3
3226.924		V II	185
3226.984		Ni I	7
3226.986		Co I	124
3227.067		Fe I	156
3227.114		Ce II	95
3227.17	P	Fe I	247
3227.23		Cr I	162
3227.409		V I	134
3227.48		Cr II	153
3227.732		Fe II	6
3227.752		Co I	8
3227.798		Fe I	157
3228.003		Fe I	379
3228.090		Mn I	14
3228.183		Ti I	179
3228.262		Fe I	157
3228.36	P	Ti II	46
3228.564		Ce III	1
3228.600		Fe II	
3228.605		Ti II	24
3228.784		Sm II	52
3228.81		Zr II	49
3228.900		Fe I	157
3229.123		Fe I	8
3229.193		Ti II	2
3229.204		Cr I	220
3229.36		Co I	152
3229.363		Ce II	94
3229.38		Cr II	46
3229.397		Ti II	36
3229.50		Ne II	43
3229.604		V I	134
3229.73		Zr II	149
3229.78		Fe I	247
3229.89		Cr II	114
3229.994		Fe I	546
3230	P	O V	9
3230.09	P	Fe I	27
3230.16	P	Fe I	156
3230.16		Ne II	11
3230.210		Fe I	158
3230.496		Fe II	95
3230.55		Si III	6
3230.559		Sm II	21
3230.646		V I	13
3230.719		Mn I	14
3230.919		V II	48
3230.963		Fe I	157
3231.09	P	Ni I	106
3231.10		S III	3
3231.20		Y II	65
3231.236		Ce II	149
3231.315		Ti II	9
3231.349		Nd II	42
3231.509		Tm II	13

I A	Type	Element	Multiplet No.
3231.528		Sm II	13
3231.599		Fe I	50
3231.64		Cr II	122
3231.69		Zr II	3
3231.702		Fe II	80
3231.71	P	Ti II	46
3231.75		Cl II	73
3231.952		V II	61
3231.97		Ne II	11
3232.00		Y II	49
3232.055		Os I	3
3232.16	P	Fe I	258
3232.280		Ti II	36
3232.38		Ne II	11
3232.52		Sb I	2
3232.61		Li I	2
3232.791		Fe II	119
3232.791		Ti I	179
3232.874		Co I	106
3232.963		Ni I	7
3233.02		Ca III	4
3233.053		Fe I	620
3233.174		Ni I	91,184
3233.190		V I	72
3233.234		Cr I	25
3233.24		S III	3
3233.304		Fe I	142
3233.324		Rh II	2
3233.546		V II	61
3233.62		P III	4
3233.772		V II	61
3233.88		Ni I	
3233.967		Fe I	158
3233.968		Mn I	
3234.00		Si III	6
3234.06		Cr II	63
3234.119		Co I	72
3234.12		Zr I	19
3234.165		Ce II	119
3234.17		S III	3
3234.274		Ce II	80
3234.50	P	Ti II	46
3234.504		V II	61
3234.517		Ti II	2
3234.614		Fe I	8
3234.649		Ni I	21
3234.923		Fe II	1
3234.926		Na II	10
3235.003		Mn I	
3235.26		Cr II	139
3235.33	P	Fe I	309
3235.448		Tm II	8
3235.532		Co I	71,138
3235.592		Fe I	308
3235.753		Ni I	11
3235.783		Co I	72
3235.95	P	Ti I	47
3236.106		Gd II	75
3236.122		Ti II	24
3236.17		Zr II	104
3236.223		Fe I	7
3236.403		Cb II	1
3236.573		Ti II	2
3236.61		Zr II	125
3236.638		Sm II	
3236.735		Ce II	101
3236.778		Mn I	14
3236.806		Tm II	13
3236.82		A II	83
3237.028		Co I	7
3237.234		Fe I	256
3237.402		Fe II	81
3237.414		Mn I	
3237.54		Zr II	50
3237.729		Cr I	114
3237.815		Fe II	81
3237.876		V II	38
3238.087		Cr I	114
3238.224		Ti I	179
3238.31		Fe III	79
3238.32	P	Fe I	545
3238.50		Cr I	162
3238.535		Fe I	397
3238.57		O III	9
3238.621		Gd II	92
3238.74		Fe III	64
3238.77		Cr II	63
3239	P	O V	5
3239.029		Fe I	141,142
3239.037		Ti I	2

I A	Type	Element	Multiplet No.
3239.04		Fe III	63
3239.101		Rh II	2
3239.14		Cr I	92
3239.256		Co I	47
3239.35	P	Fe I	379
3239.436		Fe I	157
3239.46	P	Fe I	157
3239.657		Sm II	48
3239.664		Ti II	24
3239.833		V II	61
3239.87	P	Fe II	81
3240.013		Fe I	545
3240.07		Cr II	140
3240.11	P	Fe I	158
3240.230		Tm II	
3240.399		Mn I	13
3240.516		Rh II	6
3240.616		Mn I	14
3240.71		Ti II	9
3240.785		V II	61
3240.84	P	Ti I	47
3240.85	P	Zr II	12
3240.951		Cr I	25
3241.01		Zr II	4
3241.05		Co I	9
3241.161		Sm II	6
3241.38		Cr II	153
3241.43	P	Fe I	158
3241.50	P	Fe I	27
3241.530		Tm II	4
3241.586		Sm II	22
3241.67		Si III	6
3241.685		Fe II	80
3241.835		Be II	5
3241.984		Ti II	2
3242.18		Zr II	126
3242.268		Fe I	255
3242.30		Y II	10
3242.304		Gd II	92
3242.72		Pd I	3
3242.834		Gd II	75
3243.058		Ni I	22
3243.118		Fe I	192
3243.34		Ne II	15
3243.36		W II	13,15
3243.370		Ce II	214
3243.406		Fe I	381,710
3243.513		Ti I	179
3243.579		Co I	47
3243.70		A II	47
3243.723		Fe II	119
3243.74	P	V II	48
3243.780		Mn I	14
3243.803		Ti I	26
3243.840		Co I	69
3244.115		Cr I	25
3244.15		Ne II	14
3244.17	P	Sc II	5
3244.190		Fe I	156
3244.44		Cl III	6
3244.53	P	Ti I	47
3244.69		Cr I	114
3245	P	O V	9
3245.13		La II	32
3245.31		Cr II	62
3245.370		Ni I	108
3245.485		Cr I	25
3245.542		Cr I	113
3245.750		Co I	138
3245.80	P	Fe I	920
3245.984		Fe I	27
3246.005		Fe I	8
3246.05	P	Fe I	309
3246.492		Fe I	252
3246.674		Ce II	130
3246.973		Fe I	95
3247.01		Cr II	62
3247.170		Co I	70
3247.171		Fe II	81
3247.274		Cr I	25
3247.297		Fe I	157
3247.33		Cr II	81
3247.392		Fe II	119
3247.478		Cb II	5
3247.540		Cu I	1
3247.55		A II	
3247.908		V II	109
3248.15		Ne II	15
3248.206		Fe I	157
3248.457		Ni I	21

I A	Type	Element	Multiplet No.
3248.516		Mn I	14
3248.602		Ti I	89
3248.602		Ti II	66
3248.70		Ti II	9
3249	P	O V	9
3249.037		Fe I	308
3249.16	P	Fe II	65
3249.204		Fe I	253
3249.35		La II	31
3249.370		Ti II	23
3249.440		Ni I	10
3249.464		V II	82
3249.566		V I	13
3249.617		V II	38
3249.657		Fe II	81
3249.742		Gd II	75
3249.82		A II	47
3249.911		Fe II	78
3249.995		Co I	26
3250.187		Gd II	92
3250.27		Fe III	37
3250.34	P	Fe II	78
3250.372		Sm II	2
3250.400		Fe I	142,379
3250.42		Zr I	19
3250.44		Zr II	125
3250.51		Co I	154
3250.58		Cr I	114
3250.634		Fe I	95
3250.743		Ni I	39
3250.747		Mo II	2
3250.775		V II	171
3250.79		Cr II	61
3251.135		Mn I	14
3251.236		Fe I	93
3251.32		Sc II	5
3251.34	P	Fe II	137
3251.46	P	Zr II	62
3251.656		Co I	152
3251.66		Pd I	6
3251.836		Cr I	113
3251.869		V II	108
3251.911		Ti II	2
3252.12	P	Fe I	247
3252.40	P	Fe II	78
3252.483		Ce II	182
3252.743		Gd II	136
3252.914		Ti II	2
3252.928		Fe I	252
3252.94		O III	9
3252.94	P	Ti II	23
3252.948		Mn I	14
3253.26		Cr I	114
3253.401		Sm II	
3253.41		La II	114
3253.416		Co I	70
3253.44		Si III	12
3253.610		Fe I	681
3253.70		Hf II	1
3253.839		Fe I	250
3253.943		Sm II	40
3253.954		Fe I	257
3254.03		A II	46
3254.039		Mn I	12
3254.070		Cb II	1
3254.202		Co I	69
3254.250		Ti II	2
3254.261		Fe I	249
3254.32		Lu II	4
3254.363		Fe I	620
3254.377		Sm II	6
3254.46	P	Fe I	158
3254.63		Co I	154
3254.734		Fe I	308
3254.773		V I	13
3254.773		V II	38
3254.95		Cr I	
3255.28		Hf II	7
3255.30		Cr II	138
3255.39		Ne II	23
3255.49		Fe III	96
3255.62		Cr II	153
3255.678		Sc I	9
3255.819		Gd II	92
3255.884		Fe II	1
3256.137		Mn I	14
3256.52		Fe I	158
3256.52	P	Fe I	397
3256.53		Zr II	49
3256.54		Fe III	75

I A	Type	Element	Multiplet No.
3256.779		V I	138
3257.072		Gd II	92
3257.244		Fe I	27,451
3257.358		Fe II	94
3257.594		Fe I	90
3257.822		Cr I	113
3257.83		S II	17
3257.893		V II	108
3257.894		Fe II	178
3257.90		C III	6
3257.965		Na II	14
3258.01		Cr II	152
3258.035		Co I	47
3258.048		Tm II	4
3258.413		Mn I	14
3258.62	P	Fe I	157
3258.67		Si III	12
3258.77		Cr II	159
3258.773		Fe II	81
3258.80		Pd I	5
3259.007		Ru II	6
3259.04		Ti I	123
3259.048		Fe II	81
3259.20		Co I	153
3259.250		Gd II	92
3259.32		Cl III	6
3259.42		Ti I	123
3259.44		C III	6
3259.44	P	Fe II	178
3259.60		Cr I	25
3259.684		V II	48
3259.71		A II	
3259.75	P	Fe II	81
3259.975		Cr I	114
3259.991		Fe I	157
3260.11		Zr I	35
3260.231		Mn I	14
3260.259		Ti I	89
3260.259		Ti II	45
3260.276		Fe I	250
3260.286		Co I	154
3260.564		Cb II	
3260.814		Co I	107
3260.975		Ce II	258
3260.98		O III	8
3261.050		Cd I	1
3261.081		V I	
3261.332		Fe I	712
3261.509		Fe II	195
3261.56		Cr II	159
3261.596		Ti II	66,89
3261.80		V II	109
3262.009		Fe I	710
3262.23		C III	6
3262.284		Fe I	
3262.290		Os I	3
3262.340		Sn I	3
3262.44		Fe III	74
3262.515		Gd II	75
3262.63		Ti I	88
3263.04		Fe III	64
3263.213		Co I	124
3263.238		V I	12
3263.25	P	Cr I	25
3263.33		V II	38
3263.365		Cb II	
3263.373		Gd II	75
3263.378		Fe I	144
3263.43		Ne II	15
3263.45	P	Fe I	680
3263.60		A II	46
3263.686		Ti II	45
3263.98		La II	114
3264	P	O V	9
3264.137		Gd II	92
3264.22		Fe III	64
3264.26		Cr II	61
3264.291		Rh II	5
3264.44		Ni I	
3264.522		Fe I	90
3264.711		Mn I	13
3264.716		Fe I	157
3264.718		Co I	47
3264.76	P	Fe II	1
3264.81		Zr II	62
3264.82	P	Co I	153
3264.83	P	Co I	9
3264.842		Co I	105
3265.046		Fe I	8
3265.352		Co I	106

I A	Type	Element	Multiplet No.
3265.46		O III	8
3265.480		Ti I	123
3265.55	P	Fe I	308
3265.616		Fe I	91
3265.67		La II	45
3265.893		V II	74
3265.899		V I	138
3266.25		Cr II	121
3266.39		Eu II	24
3266.43		Ti II	57
3266.446		Ir I	2
3266.633		Tm II	8
3266.634		Cr I	25
3266.88		Fe III	7
3266.91		V II	137
3266.938		Fe II	65
3267.035		Fe II	80
3267.31		O III	8
3267.401		Tm II	13
3267.41		Ti I	64
3267.480		Rh II	6
3267.51		Sb I	2
3267.639		Mo II	6
3267.709		V II	7
3267.794		Mn I	
3267.945		Os I	1
3268.064		Ni I	
3268.234		Fe I	95
3268.335		Gd II	4
3268.48		Cr II	62
3268.512		Fe II	118
3268.61		Ti I	88
3268.722		Mn I	
3268.92	P	Fe II	81
3268.971		Ni I	91
3269.05		A II	46
3269.090		Ca I	12
3269.240		Fe I	710
3269.42	P	Fe I	95
3269.494		Ge I	1
3269.60	P	Rh II	8
3269.66		Zr I	34
3269.75	P	Cr II	152
3269.77		Cr II	138
3269.77		Ti II	57
3269.772		Fe II	118
3269.86		Ne II	15
3269.904		Sc I	9
3269.964		Fe I	90
3270.115		V II	94
3270.14		Cr II	61
3270.198		Co I	152
3270.23		Fe III	63
3270.351		Mn I	
3270.515		Gd II	92
3270.562		Ti I	123
3270.69	P	Fe I	954
3270.70		Cr I	219
3270.79		Ne II	2
3270.98		O II	39
3271.002		Fe I	91
3271.118		Ni I	23
3271.124		V II	7
3271.13		Zr II	22
3271.151		Ce II	146
3271.17	P	Ni I	108
3271.498		Fe I	680
3271.61		Rh II	2
3271.612		Rh I	6
3271.637		V I	12
3271.652		Ti II	66
3271.666		Mo II	6
3271.693		Fe I	49
3271.778		Co I	70
3272.080		Ti II	66
3272.21		Zr II	3
3272.25		S II	17
3272.253		Ce II	73
3272.30	P	Zr II	62
3272.405		Co I	152
3272.60		Fe I	51
3272.71		Fe I	712
3272.76		Co I	151
3272.77		Eu II	24
3272.807		Sm II	40
3273.027		V I	71
3273.04		Zr II	3
3273.36		A II	71
3273.483		Sm II	
3273.499		Fe II	118

I A	Type	Element	Multiplet No.
3273.50		Ni I	108
3273.52		O II	39
3273.53		Fe III	7
3273.619		Sc I	9
3273.66		Hf II	2
3273.957		Cu I	1
3274.047		Ti I	123
3274.183		Gd II	92
3274.220		Na II	14
3274.24	P	Fe I	95
3274.452		Fe I	710
3274.50		V II	163
3274.640		Be II	2
3274.65		Fe III	96
3274.661		Ca I	12
3274.864		Ce II	104
3274.90		Ni II	1
3274.95		Fe III	96
3275.15		Zr II	12
3275.20		Ne II	29
3275.218		Nd II	
3275.24	P	Fe I	27
3275.293		Ti II	23
3275.60	P	Ni I	107
3275.65		Zr II	92
3275.66		Co I	43
3275.67		O V	5
3275.685		Fe I	308
3275.776		Al II	5
3275.848		Fe I	450a
3275.92		Cr II	151
3276.08		Fe III	7
3276.12		V II	7
3276.25		Si III	12
3276.251		Ce II	93
3276.28		Cr II	172
3276.37		Zr II	35
3276.477		Fe I	90
3276.483		Co I	154
3276.606		Fe II	92
3276.747		Sm II	48
3276.774		Ti II	45
3276.81		Cl II	30
3276.811		Tm II	4
3276.998		Ti II	8
3277.082		V II	137
3277.23		Ni I	90
3277.347		Fe II	1
3277.448		V II	194
3277.662		Co I	152
3277.69		O II	23
3277.71		V II	137
3277.78		Eu II	24
3277.82		P III	2
3277.853		Fe II	65
3277.86		Cr I	219
3277.939		V I	12
3278.04		Fe III	7
3278.105		Co I	153
3278.290		Ti II	66
3278.43		Y I	
3278.553		Mn I	12
3278.741		Fe I	144,250
3278.79		Cr II	113
3278.79		K III	1
3278.842		Co I	72
3278.89		Zr II	149
3278.922		Ti I	63
3278.922		Ti II	23
3279.25		Si III	12
3279.254		Co I	70
3279.26		Zr II	3
3279.529		Gd II	92
3279.54		Cr II	121
3279.649		Fe II	118
3279.743		Fe I	449
3279.842		Ce II	68
3279.844		V II	73
3279.97		O III	29
3279.97	P	Ti II	57
3279.98		Hf II	9
3279.995		Ti II	35
3280.22		P III	6
3280.261		Fe I	620
3280.391		Ti I	88
3280.58		Fe III	7
3280.682		Ag I	1
3280.75		Zr II	34
3280.756		Mn I	10
3280.763		Fe I	451

I A	Type	Element	Multiplet No.
3280.91		Y II	29
3281.120		V II	136
3281.293		Fe II	1
3281.585		Co I	8
3281.607		Gd II	92
3281.72		A II	47
3281.755		V II	136
3281.83	P	Fe I	50
3281.880		Ni I	106
3281.94		O III	8
3282.232		Co I	47
3282.305		Gd II	92
3282.329		Ti II	66
3282.333		Zn I	4
3282.51		Y II	65
3282.534		V II	72
3282.696		Ni I	7
3282.725		Fe I	449
3282.73		Zr I	19
3282.777		Nd II	41
3282.827		Ni I	106
3282.84		Zr II	125
3282.891		Fe I	680
3283.04		Cr II	159
3283.11		Al III	10
3283.14	P	Ti II	57
3283.21		Sn II	2
3283.22		P III	2
3283.30		Fe III	14
3283.311		V I	12
3283.39		Hf II	30
3283.40	P	Fe II	118
3283.400		Tm II	7
3283.41		Cl III	2
3283.430		Fe I	27
3283.463		Cb II	
3283.466		Co I	107
3283.573		Rh I	4
3283.75		Fe III	7
3283.777		Co I	47
3283.95		La II	120
3284.360		V I	71
3284.432		Ni I	96
3284.57		O III	8
3284.588		Fe I	91
3284.72		Zr II	4
3284.996		Fe II	93
3285.022		V II	108
3285.093		Nd II	
3285.20		Fe I	396
3285.224		Ce II	148
3285.425		Fe II	1
3285.54	P	Fe I	248
3285.603		Na II	4
3285.609		Tm II	10
3285.664		Sm II	21
3285.672		V II	162
3285.77		Zr II	91
3285.85		A III	1
3285.89		Zr II	62
3285.96		Cr II	137
3286.026		Fe I	90
3286.029		Ce II	199
3286.067		Ca I	12
3286.229		Sm II	48
3286.34		Cr II	172
3286.463		Fe I	710
3286.545		Co I	46
3286.57		W II	1
3286.71		Y II	65
3286.755		Fe I	91
3286.756		Ti II	89
3286.946		Ni I	19
3286.98	P	Ni I	107
3287.117		Fe I	396
3287.192		Co I	71
3287.192		Gd II	136
3287.221		Ni I	55
3287.26		Pd I	3
3287.31		Zr II	12
3287.37		Al III	10
3287.468		Fe II	118
3287.575		Co I	154
3287.59		O II	23
3287.657		Ti II	89
3287.70		Cr I	
3287.827		Co I	43
3288.04		Cr II	62
3288.142		Ti II	8
3288.324		V II	89

I A	Type	Element	Multiplet No.
3288.428		Ti II	66
3288.575		Ti II	66
3288.59	P	Ti I	63
3288.660		Fe I	144
3288.81		Fe III	7
3288.81		Zr II	4,62
3288.972		Fe I	90
3288.985		V II	109
3289.016		Mo I	11
3289.06		K III	4
3289.150		Gd II	75
3289.347		Fe II	65
3289.36		Yb II	1
3289.391		V II	7
3289.442		Fe I	380
3289.80		Cl III	2
3290.13		O II	23
3290.23		Pt I	1
3290.240		V II	108
3290.54		Ni II	5
3290.69		Ni II	1
3290.722		Fe I	90
3290.988		Fe I	95
3291.001		Tm II	3
3291.04		V II	60
3291.44	P	Fe I	954
3291.47		A II	
3291.676		V I	12
3291.75		Cr II	68
3292.022		Fe I	680
3292.04		Fe III	7
3292.078		Ti I	62
3292.210		Gd II	74
3292.22		Co I	153
3292.312		Mo II	6
3292.590		Fe I	91
3292.89	P	Fe II	136
3293.146		Fe I	51
3293.146		V II	235
3293.210		Co I	154
3293.48	P	Ti II	57
3293.66		A II	83
3293.674		Ni I	90
3293.81		Cr I	219
3293.861		Co I	107
3293.9		Y II	64
3293.95		A II	
3294.098		Co I	154
3294.220		Ru II	2
3294.44		La II	155
3294.50		Fe III	14
3294.536		Co I	152
3294.85		Fe III	37
3295.03		Zr II	36
3295.06	P	Fe II	93
3295.13		O II	23
3295.24		Fe III	
3295.240		Fe II	79
3295.289		Ce II	147
3295.427		Cr II	51
3295.813		Sm II	13
3295.814		Fe II	1
3296.027		Mn I	11
3296.052		V II	162
3296.41		Zr II	62
3296.467		Fe I	250
3296.668		Gd II	21
3296.786		He I	9
3296.806		Fe I	619
3296.826		Fe II	92
3296.882		Mn I	12
3296.883		Ce II	247
3297.528		V II	108
3297.68	P	Ti I	122
3297.684		Mo II	6
3297.74		Ne II	2
3297.888		Fe II	91
3298	P	O V	9
3298.02	P	Ni I	91
3298.104		Sm II	
3298.133		Fe I	90
3298.139		V I	12
3298.21		Ti II	44
3298.224		Mn I	
3298.318		Cr I	161
3298.680		Co I	70
3298.72		La II	
3298.738		V II	7
3299.079		Fe I	710
3299.086		V I	55
3299.11		Co I	151
3299.36		O III	3
3299.41	P	Sc II	35
3299.413		Ti I	61
3299.44	P	Ti II	8
3299.511		Fe I	49
3299.77		Fe III	96
3299.771		Fe II	
3300.056		Fe II	228
3300.148		Nd II	
3300.152		Ce II	166
3300.20		Fe III	96
3300.819		W I	5
3300.905		V II	60
3300.976		Gd II	74
3301.09		Fe III	50
3301.21		Cr II	137
3301.227		Fe I	380
3301.559		Os I	1
3301.56		O II	23
3301.587		Ru I	4
3301.66		V II	
3301.678		Sm II	21,48
3301.71		Ti II	44
3301.734		Sr I	7
3301.87		Pt I	7
3301.88		A III	1
3301.927		Fe I	617
3301.95		Eu II	24
3302.096		Ti II	8
3302.15		Pd I	3
3302.19		Fe III	37
3302.34		Na I	2
3302.454		Tm II	7
3302.588		Zn I	4
3302.66		Zr II	85
3302.86		Cr I	161
3302.861		Fe II	1
3302.94		Na I	2
3302.941		Zn I	4
3303.11		La II	45
3303.278		Mn I	
3303.466		Fe II	1
3303.574		Fe I	449
3303.881		Co I	47
3304.01		Y II	66
3304.119		Co I	154
3304.31		Fe III	
3304.36	P	Fe I	710
3304.433		Fe II	93
3304.474		V II	136
3304.523		Sm II	2
3304.73		Cr II	120
3304.836		Ce II	103
3304.950		Ni I	108
3305.15		O II	23
3305.15		Zr II	2
3305.185		Sm II	35
3305.22		Fe III	7
3305.634		Fe II	79
3305.730		Co I	152
3305.75	P	Fe I	618
3305.77		O III	8
3305.971		Fe I	91
3306.053		Ti II	44
3306.27		Zr II	3
3306.35	P	Fe I	544
3306.356		Fe I	91
3306.388		Sm II	48
3306.45		Cl II	37
3306.495		Fe I	680
3306.50		A II	
3306.60		O II	23
3306.703		Fe I	396
3306.879		Ti I	190
3306.94		Fe III	73
3306.95		Cr II	150
3306.98		La II	17
3307.013		Ni I	107
3307.015		Fe I	450
3307.017		Sm II	
3307.044		Cr II	51
3307.156		Co I	69
3307.234		Fe I	617
3307.24		A II	83
3307.362		Rh II	5
3307.445		V II	60
3307.53		Fe III	7
3307.534		Sr I	7
3307.57	P	Fe II	65
3307.717		Ti II	8
3307.755		Cr I	78
3307.90		Cl II	37
3308.02		Eu II	25
3308.15		Cr II	137
3308.246		V I	12
3308.391		Tf I	87
3308.4		Y II	64
3308.480		V II	137
3308.482		Co I	155
3308.517		Gd II	4
3308.688		Co I	105
3308.75	P	Fe I	190
3308.785		Mn I	11
3308.806		Ti II	7
3308.814		Co I	153
3308.86		P II	4
3308.91	P	Ni I	107
3309.176		V I	55
3309.32	P	Ni I	105
3309.32	P	Ti I	122
3309.40		Fe III	
3309.428		Ni I	
3309.501		Ti I	87
3309.53	P	Ti II	44
3309.582		Gd II	24
3309.730		Ti I	190
3309.78		Ne II	7
3309.804		Tm II	
3309.82		Cr I	161
3309.90		Zr II	72
3310.202		Ni I	38
3310.347		Fe I	449
3310.496		Fe I	679
3310.55		Ne II	23
3310.65		Cr II	120,158
3310.661		Sm II	31
3311.25		A III	1
3311.30		Ne II	2
3311.34		Zr II	34
3311.451		Fe I	27
3311.708		Sc II	41
3311.905		Mn I	10
3311.929		Cr II	51
3312.06		Cr I	78
3312.148		Co I	69
3312.18		Cr II	51
3312.215		Ce II	25
3312.232		Fe I	450a
3312.30		O III	3
3312.320		Ni I	106
3312.39		Y II	65
3312.415		Sm II	21
3312.690		Ti I	190
3312.707		Fe II	1
3312.736		Sc II	41
3312.78		Cl II	8
3312.87		Hf I	3
3312.90	P	Ti II	56
3312.992		Ni I	106
3313.08		Cr II	119
3313.116		Co I	153
3313.33		Eu II	24
3313.344		Al II	8
3313.470		Al II	8
3313.524		Mn I	30
3313.539		Sc II	35
3313.70		Zr II	61
3313.721		Cr I	161
3313.723		Fe I	50
3313.731		Gd II	24
3313.996		Fe II	1
3314	P	O VI	4
3314.06		Cr II	158
3314.070		Fe I	736
3314.073		Co I	43,149
3314.345		Co I	152
3314.393		Mn I	30
3314.422		Ti I	87
3314.450		Fe I	250
3314.49		Zr II	47
3314.50		S II	17
3314.523		Ti I	87
3314.56	P	Cr I	182
3314.57		Cr II	150
3314.60		Ne II	22
3314.721		Ce II	146
3314.742		Fe I	680
3314.756	Forb	Al II	8
3314.80	P	Fe II	93

I A	Type	Element	Multiplet No.
3314.862		V II	136
3314.876		Mn I	30
3314.883		Al II	8
3314.981		Al II	8
3315.035		Co I	154
3315.05		Pt I	1
3315.17	P	Fe I	618
3315.176		V II	71
3315.19		Cr I	78
3315.237		Ti I	190
3315.29		Cr II	51
3315.324		Ti II	65
3315.44		Cl II	8,37
3315.516	Forb	Al II	8
3315.53	P	Fe II	93
3315.53		V II	136
3315.590		Gd II	41
3315.608		Al II	8
3315.663		Ni I	22
3315.80		Fe III	73
3316.18	P	Fe II	5
3316.324		Mn I	11
3316.440		Mn I	30
3316.503		Cr I	255
3316.579		Sm II	
3316.79		Sc II	35
3316.86		Cl II	37
3316.873		V II	137
3316.875		Tm II	7
3317.038		Sc II	41
3317.121		Fe I	139
3317.295		V II	7
3317.305		Mn I	30
3317.693		Sc II	41
3317.70		S II	42
3317.797		Ce II	102
3317.912		V II	108
3317.93		Co I	69
3317.99		Hf II	4
3318.024		Ti II	7
3318.032		Na II	16
3318.055		Gd II	24
3318.14		N II	22
3318.362		Ti I	190
3318.398		Co I	45
3318.52		Zr II	35
3318.6		Y II	64
3318.60		Co I	151
3318.62	P	Fe II	136
3318.862		Fe II	135
3318.907		V II	137
3319.03		Zr II	4
3319.083		Ti II	8
3319.156		Co I	155
3319.258		Fe I	449
3319.478		Co I	154
3319.561		Co I	45
3319.75		Ne II	10
3319.78		Y II	64
3319.822		Co I	153
3319.89		Eu II	24
3320.14		Cl II	8
3320.155		Sm II	20
3320.257		Ni I	9
3320.29		Ne II	12
3320.422		Sc II	35
3320.438		Gd II	74
3320.57		Cl III	6
3320.650		Fe I	190
3320.693		Mn I	
3320.709		Sc II	41
3320.779		Ni I	108
3320.780		V II	149
3320.800		Fe I	396
3320.902		Mo II	6
3321.013		Be I	1
3321.086		Be I	1
3321.179		Sm II	40
3321.19		Cr I	182
3321.242		Ni I	92
3321.347		Be I	1
3321.348		Gd II	21
3321.491		Fe II	194
3321.539		V II	71
3321.588		Ti I	87
3321.700		Ti II	65
3321.857		Eu II	21
3321.912		Co I	106
3322.198		Co I	104,149
3322.231		Sr I	7

I A	Type	Element	Multiplet No.
3322.310		Ni I	39
3322.40		K III	1
3322.474		Fe I	396
3322.69		Cr II	51
3322.936		Ti II	7
3322.98	P	Ti II	44
3322.99		Zr II	34
3323.066		Fe II	92
3323.092		Rh I	4
3323.35		Hf II	79
3323.39	P	Ti II	43
3323.53		Cr II	51
3323.660		Ti I	255
3323.731		V II	81
3323.737		Fe I	379
3323.75		Ne II	7
3323.896		Ti I	255
3324.01		S III	2
3324.03	P	Zr II	62
3324.060		Cr II	4
3324.10		Cr II	120
3324.346		Cr II	80
3324.372		Fe I	617
3324.541		Fe I	191
3324.58		N II	22
3324.61		Ti I	60
3324.67	P	Cr II	92
3324.72		Fe III	96
3324.754		Ti I	190
3324.838		Fe II	194
3324.87		S III	2
3325.012		Fe II	93
3325.155		Ti I	190
3325.229		Ti I	190
3325.240		Co I	70
3325.258		Sm II	
3325.329		Ce II	25
3325.365		Ti I	255
3325.468		Fe I	191
3326.16		O III	28
3326.194		W I	5
3326.21		La II	121
3326.27		Co I	46
3326.564		Co I	43
3326.590		Cr I	182
3326.639		Ti I	87
3326.670		Ni I	108
3326.68	P	Ti II	56
3326.74	P	Sc II	41
3326.762		Ti II	7
3326.81		Zr II	91
3326.991		Co I	152
3327.16		Ne II	2
3327.308		Mo I	9
3327.392		Ni I	90
3327.498		Fe I	190
3327.578		Tm II	12
3327.63		Fe II	64
3327.67		Zr II	11
3327.685		Na II	16
3327.89		Y II	18
3327.961		Fe I	86
3328.21		Hf II	10
3328.270		Nd II	40
3328.326		Ti I	255
3328.351		Cr II	4
3328.714		Ni I	20
3328.79		N II	22
3328.80		Cr I	160
3328.867		Fe I	617
3329.013		Co I	152
3329.053		Cr I	182
3329.06		Cl III	2
3329.07		La II	120
3329.070		Fe II	
3329.12		Cl II	37
3329.20		Ne II	12
3329.215		Mo II	6
3329.3		S II	17
3329.345		Gd II	74
3329.45		Cr II	150
3329.455		Ti II	7
3329.466		Co I	153
3329.532		Fe I	542a
3329.855		V I	55
3329.89		Fe III	18
3329.93		Mg I	4
3329.988		Sr I	7
3330.30		N II	22
3330.340		Gd II	

I A	Type	Element	Multiplet No.
3330.40		O III	22,28
3330.620		Sn I	2
3330.668		Mn I	9
3330.78		Ne II	19
3330.880		Y II	85
3331.07		Sc II	35
3331.26	P	Ni I	107
3331.32		N II	22
3331.382		Gd II	8
3331.616		Fe I	191
3331.62		Fe III	73
3331.778		Fe I	144
3331.90		Zr II	11
3332.111		Ti II	65
3332.133		Gd II	73
3332.17		Mg I	4
3332.180		Ni I	
3332.42		Cl II	8
3332.49		O III	28
3332.73		Hf I	2
3332.879		Cr I	182
3333.00		O III	22
3333.16		Si II	6
3333.27		Fe III	18,73
3333.388		Co I	25
3333.41	P	Co I	71
3333.605		Cr I	
3333.606		Y II	64
3333.608		V II	59
3333.635		Sm II	52
3333.64		Cl II	8
3333.912		Ti I	25
3334.12	P	Co I	101
3334.146		Co I	23
3334.223		Fe I	190
3334.25		Zr II	58
3334.278		Fe I	617
3334.35		Ti I	190
3334.455		Ce II	25
3334.471		Nd II	42
3334.62		Zr II	21
3334.690		Cr I	
3334.87		Ne II	2
3334.925		Cr I	160
3335.192		Ti II	7
3335.28		Cr II	80
3335.403		Fe I	246
3335.46		Cr II	92
3335.482		V II	161
3335.513		Fe I	49
3335.59		Ni I	
3335.72	P	Fe I	307
3335.776		Fe I	379
3335.90	P	Fe II	76
3335.93		Cr II	119
3336.12		Ne II	46
3336.124		Sm II	31
3336.13		A III	3
3336.150		Os I	3
3336.16		Cl III	6
3336.16		Cr II	14
3336.180		Gd II	8
3336.25		Y II	66
3336.262		Fe I	618
3336.330		Cr II	4
3336.34	P	Fe II	76
3336.54	P	Fe I	450a
3336.69		Mg I	4
3336.78		O III	22,28
3336.97		Cr I	255
3336.984		Gd II	72
3336.998		Ti II	43
3337.014		Ni I	17
3337.171		Co I	25
3337.36	P	Ni I	122
3337.40		Ti I	190
3337.49		La II	45
3337.666		Fe I	304
3337.76	P	V II	136
3337.845		V II	184
3337.85		Ti II	55
3337.93		Zr II	74
3338.19	P	Fe II	5
3338.41		Zr II	61
3338.519		Co I	123
3338.522		Fe II	76
3338.643		Fe I	396
3338.72		Fe III	
3338.758		Ni I	54
3339.050		Ni I	104

I A	Type	Element	Multiplet No.
3339.063		Nd II	41
3339.15		Co I	148
3339.202		Fe I	190,446
3339.36		Fe III	7
3339.54		Ti I	178
3339.588		Fe I	502
3339.780		Co I	155
3339.804		Cr II	4
3339.810		Ru II	2
3339.84		Si II	6
3339.90		Cr II	92
3340.344		Ti II	7
3340.42		Cl III	2
3340.55		Zr II	3
3340.566		Fe I	139
3340.579		Sm II	6
3340.74		O III	3
3340.77		Ti I	190
3341.341		Co I	148
3341.554		Ti I	60,178
3341.77		A II	59
3341.868		Ce II	198
3341.875		Ti I	24
3341.875		Ti II	16
3341.906		Fe I	303
3341.98		Cr II	119
3342.151		Ti I	23
3342.225		Fe I	137
3342.298		Fe I	378
3342.46		W II	9
3342.51		Cr II	4
3342.707		Ti I	25
3342.734		Co I	105
3342.76	P	Fe I	396
3342.77		N III	7
3343.09		W II	13
3343.227		Cr I	159
3343.243		Fe I	88
3343.27		Sc II	35
3343.312		V II	234
3343.342		Cr I	159
3343.379		Ti I	178
3343.40		W II	8
3343.494		Sm II	
3343.530		Co I	151
3343.678		Fe I	449
3343.731		Mn I	9
3343.770		Ti II	7
3343.81		Zr II	85
3343.861		Ce II	159
3344.09	P	Fe I	450
3344.26		O III	22,28
3344.353		Sm II	39
3344.43		Ne II	2
3344.50		Cr I	160
3344.513		Ca I	11
3344.56		La II	45
3344.62	P	Ti I	25
3344.630		Ti I	178
3344.72		A III	3
3344.750		Mo I	9
3344.761		Ce II	165
3344.80		Zr II	72
3344.931		Ti I	178
3345.020		Zn I	4
3345.14		Cr I	218
3345.146		Co I	45
3345.352		Mn I	
3345.36		Cr I	218
3345.49		Ne II	10
3345.572		Zn I	4
3345.679		Fe I	141
3345.86		W II	17
3345.88		Ne II	10,12
3345.899		V II	244
3345.934		Zn I	4
3345.985		Gd II	8
3346.018		Cr I	112
3346.09		Cr I	
3346.310		Co I	45
3346.403		Mo II	6
3346.71		Cr I	112
3346.724		Ti II	7
3346.78		Cr I	112
3346.91	P	Ti II	43
3346.932		Co I	153
3346.942		Fe I	87
3346.99		Ca II	9
3347.10		Sb I	1
3347.269		Mo II	6
3347.298		Sm II	48
3347.507		Fe I	449
3347.70		Fe III	18
3347.72		P IV	1
3347.837		Cr II	4
3347.927		Fe I	138
3348.05		O III	28
3348.08		O IV	4
3348.112		Co I	103
3348.372		V II	136
3348.535		Ti I	25
3348.683		Sm II	
3348.844		Ti II	7
3349.035		Ti II	16
3349.072		Cr I	
3349.11		O IV	4
3349.17		Hf II	20
3349.322		Cr I	159
3349.34		Cr II	4
3349.399		Ti II	1
3349.68	P	Cr II	14
3349.739		Fe I	377
3349.967		Ce II	200
3350.097		Gd II	74
3350.209		Ca I	11
3350.284		Fe I	191
3350.361		Ca I	11
3350.42		Ni II	1
3350.474		Gd II	7
3350.548		Ti I	178
3350.548		Ti II	43
3350.68		O III	22
3350.875		Sm II	
3350.94		A II	109
3350.99		O III	22
3351.06	P	Ni I	3
3351.138		Co I	151
3351.246		Sr I	7
3351.424		Mn I	9
3351.456		Al II	26
3351.529		Fe I	89
3351.53		V II	234
3351.596		Cr I	160
3351.67		Ti II	124
3351.750		Fe I	304
3351.966		Cr I	5
3351.97		Sn II	2
3352.048		Sc II	4
3352.06		Hf II	6
3352.071		Ti II	54
3352.43	P	Ti I	169
3352.80		Co II	2
3352.929		Fe I	190
3352.937		Ti I	25
3353.026		Cr I	255
3353.12		Cr II	4
3353.262		Ce III	2
3353.268		Fe I	190
3353.39		Cl II	4
3353.63		Ne II	23
3353.65		Zr I	18
3353.734		Sc II	12
3353.776		V II	107
3353.78		N III	5
3354.068		Fe I	378
3354.185		Sm II	39
3354.213		Co I	152
3354.29		N III	5
3354.31		O IV	8
3354.374		Co I	23
3354.39		Zr II	34
3354.54	P	Ti II	64
3354.550		He I	8
3354.621		Nd II	71
3354.634		Ti I	24
3355.05		Ne II	2
3355.228		Fe I	617
3355.366		V II	149
3355.47		N III	7
3355.517		Fe I	25
3355.92		O III	28
3355.940		Co I	103
3356.08		Zr II	3
3356.196		Ti I	178
3356.24	P	Fe II	105
3356.265		Fe II	
3356.332		Fe I	25
3356.35	P	Ce III	2
3356.35		Ne II	20
3356.352		V I	54
3356.407		Fe I	137
3356.464		Co I	104
3356.513		Gd II	24
3356.842		Co I	151
3357.07		Fe III	19
3357.215		Ce II	164
3357.26		Zr II	3
3357.40		Cr II	79
3357.40		Fe III	63,72
3357.72		Cr II	91
3357.82	P	Fe I	448
3357.90		Ne II	12
3357.965		Fe II	117
3358.003		Co I	123
3358.130		Mo I	9
3358.252		Fe II	77
3358.271		Ti I	23
3358.30		Hf II	63
3358.434		Gd II	41
3358.49		A III	3
3358.501		Cr II	4
3358.56	P	Ti I	169
3358.59		Co II	2
3358.62		W II	13
3358.620		Gd II	8
3358.72		N III	5
3358.74		Fe III	72
3358.78	P	Fe II	5
3359.066		Co I	69
3359.106		Ni I	108
3359.18		Fe III	72
3359.284		Co I	44
3359.496		Fe I	25
3359.50		V II	148
3359.679		Sc II	4
3359.814		Fe I	617
3359.96		Zr II	91
3360.103		Fe II	105
3360.15		O II	52
3360.16	P	Ti II	54
3360.295		Cr II	21
3360.45		Zr I	53
3360.541		Ce II	25
3360.63		Ne II	2
3360.711		Gd II	8
3360.84		Fe III	72
3360.935		Fe I	142
3360.990		Ti I	24
3361.07	P	Ti II	64
3361.09		C II	7
3361.11		W II	2
3361.213		Ti II	1
3361.241		Ni I	107
3361.263		Ti I	23
3361.270		Sc II	4
3361.371		Mo I	10
3361.50		Ti I	178
3361.506		V II	70
3361.553		Co I	157
3361.556		Ni I	19
3361.73		A II	109
3361.75		C II	7
3361.770		Cr II	21
3361.835		Ti I	25
3361.90		N III	5
3361.918		Ca I	11
3361.935		Sc II	4
3361.959		Fe I	377
3362.00		Y II	36
3362.131		Ca I	11
3362.213		Cr I	54
3362.233		Gd II	8
3362.28		Ca I	11
3362.38		O III	22
3362.619		Tm II	
3362.63	P	O IV	8
3362.653		Ti II	64
3362.70		Cr I	54
3362.70		Zr II	60
3362.764		Fe II	78
3362.806		Ni I	23
3362.89		Ne II	12
3363.501		Sc II	38
3363.613		Ni I	105
3363.71		Cr II	3
3363.81		Zr II	11
3363.815		Fe I	307
3363.83		O III	11
3363.974		Gd II	107
3364.10	P	Ti I	169

I A	Type	Element	Multiplet No.
3364.22	P	Fe II	5
3364.22		K III	5
3364.241		Gd II	
3364.30	P	Ti II	43
3364.44		P IV	1
3364.591		Ni I	107
3364.639		Fe I	245
3364.9		Ti II	124
3364.950		Nd II	
3365.014		Co I	69
3365.413		Fe II	78
3365.54		A II	109
3365.553		V I	54
3365.591		Gd II	8
3365.640		Fe II	194
3365.766		Ni I	38
3365.79		N III	5
3365.863		Sm II	
3366.168		Ni I	8
3366.176		Ti I	178
3366.176		Ti II	54
3366.333		Sr I	7
3366.46		Sc II	38
3366.532		Gd II	74
3366.554		Ce II	99
3366.59		A II	83
3366.790		Fe I	302
3366.807		Ni I	108
3366.870		Fe I	87
3366.880		V I	54
3366.960		Fe II	177
3367.00		O II	52
3367.02		Fe III	
3367.05	P	Ne II	12
3367.093		Gd II	4
3367.111		Co I	22
3367.161		Fe I	142
3367.18		S III	2
3367.20		Ne II	19
3367.29	P	Ni I	96
3367.36		N III	5
3367.42		Cr II	79
3367.53		Cr I	54
3367.54		Fe III	17
3367.661		Gd II	91
3367.666		V II	170
3367.81		Ca III	4
3367.81		Zr II	11
3367.892		Ni I	20
3368.054		Cr II	4
3368.09		S II	
3368.25	P	Fe I	678
3368.447		Fe II	134
3368.472		Ir I	5
3368.568		Sm II	30
3368.626		Fe II	177
3368.63		Zr I	17
3368.67		Co I	101
3368.73		Cr II	91
3368.946		Sc II	4
3368.983		Fe I	376
3369.05		Cr II	68
3369.054		Ti I	25
3369.055		Eu II	20
3369.14	P	Fe I	191
3369.212		Ti II	64
3369.27		Zr II	85
3369.295		Ru II	2
3369.349		Fe II	76
3369.40		O III	11
3369.455		Sm II	35
3369.49		S III	2
3369.549		Fe I	304
3369.573		Ni I	6
3369.618		Gd II	21,73
3369.67		Ti II	124
3369.80	P	Fe II	76
3369.8086		Ne I	2
3369.9081		Ne I	2
3370.23		O II	52
3370.322		Co I	24
3370.38		S III	2
3370.40		V II	88
3370.436		Ti I	23
3370.588		Os I	4
3370.786		Fe I	304
3370.94		Co II	2
3370.97		A II	57
3371.015		Co I	151
3371.10		P IV	1

I A	Type	Element	Multiplet No.
3371.209		Sm II	52
3371.447		Ti I	24
3371.85		O II	52
3371.87		Ne II	22
3371.90		S II	
3371.993		Ni I	7
3372.070		Fe I	83
3372.13		Cr II	91
3372.151		Sc II	4
3372.208		Ti II	16
3372.359		Fe I	447
3372.666		V II	106
3372.68		Ca III	1
3372.70		P II	34
3372.800		Ti II	1
3373.02		Pd I	3
3373.226		Co I	122
3373.42		Zr II	74
3373.455		Ce II	244
3373.51		Fe III	18
3373.57		Sc II	38
3373.729		Ce II	212
3373.87		A II	108
3373.874		Fe I	303
3373.96		Cr I	181
3373.969		Co I	44
3373.98		Ni II	1
3374.06		N III	5
3374.10		Ne II	12
3374.221		Fe I	89
3374.221		Ni I	17
3374.352		Ti II	54
3374.512		Tm II	12
3374.584		Gd II	72
3374.642		Ni I	106
3374.688		Gd II	24
3374.71		Zr II	61
3374.77		O II	96
3374.93		Cr I	181
3374.95		Cr II	4
3374.99		Cr II	149
3375.238		Co I	153
3375.50		O IV	8
3375.561		Ni I	108
3375.77		O II	52
3376.057		V I	54
3376.17		W II	10
3376.18		Cr I	
3376.24	P	Fe II	78
3376.25		Zr II	60
3376.27		Cr II	78
3376.33		La II	46
3376.331		Ni I	104
3376.397		Cr I	254
3376.46		A II	109
3376.68		Hf II	31
3376.72		Cr II	12,149
3376.82		O III	27
3377.060		Co I	42
3377.127		Ce II	213
3377.20		O II	9
3377.23		Ne II	42
3377.36		Cr II	149
3377.394		V I	54
3377.45		Zr II	11
3377.485		Ti I	25
3377.52		P II	12
3377.577		Ti I	23
3377.625		V I	54
3377.77		Fe III	97
3378.09		O IV	4
3378.209		Sc II	38
3378.28		Ne II	7
3378.30		Zr II	73
3378.337		Cr II	21
3378.676		Fe I	301
3378.73	P	Fe I	137
3378.736		Co I	121
3379.017		Fe I	85
3379.171		Cr I	5
3379.172		Ce II	98
3379.18		Sc II	43
3379.216		Ti I	24
3379.371		Cr II	21
3379.39		Ne II	12
3379.397		Sc II	38
3379.48		A II	59
3379.564		Cr I	54
3379.58		A II	
3379.756		Gd II	91

I A	Type	Element	Multiplet No.
3379.762		Mo II	6
3379.825		Cr I	54
3379.825		Cr II	21
3379.930		Ti II	64
3380.004		Fe I	709
3380.111		Fe I	304
3380.114		Y II	41
3380.215		Mo II	6
3380.25		Eu II	23
3380.278		Ti II	1
3380.515		Gd II	74
3380.574		Ni I	37
3380.711		Sr II	4
3380.885		Ni I	7
3380.91		La II	45
3381.003		Fe II	177
3381.28		O IV	3
3381.33	P	O IV	3
3381.340		Fe I	376,677
3381.36	P	Fe II	5
3381.49		Co I	88
3382.07		Cr I	181
3382.071		Co I	123
3382.19		Fe III	72
3382.312		Ti I	86
3382.399		Sm II	20
3382.403		Fe I	84
3382.529		V II	107
3382.683		Cr II	3
3382.69		O III	27
3382.79	P	Cr II	112
3382.890		Ag I	1
3383.15		Sb I	1
3383.387		Fe I	245
3383.57	P	Ti II	63
3383.692		Fe I	85,444
3383.761		Ti II	1
3383.85		O III	27
3383.94		A II	92
3383.981		Fe I	83
3384.14		Hf II	44
3384.24		Cr I	54
3384.617		Mo I	9
3384.65		Cr I	54
3384.658		Sm II	30,39
3384.70		Hf II	9
3384.80	P	Fe I	25
3384.95		O III	27
3385.219		Co I	22
3385.31		Cr I	236
3385.55		O IV	3
3385.664		Ti I	24
3385.790		V II	183
3385.81		S II	
3385.944		Ti I	23
3386.129		Rh II	2
3386.22		Cl III	11
3386.24		Ne II	12
3386.452		Fe II	88
3386.50		Cr I	236
3386.724		Fe II	
3387.061		Co I	119
3387.13		S III	2
3387.410		Fe I	306
3387.466		Ni I	17
3387.47		Co I	45
3387.60		Cl III	2
3387.72		Co II	2
3387.73		Cr II	90
3387.834		Ti II	1
3387.87		Zr II	74
3387.96		Cr II	112
3388.065		Gd II	71
3388.134		Fe II	77
3388.163		Co I	23
3388.18		Co II	2
3388.29		Zr II	2
3388.46		Ne II	19
3388.54		A II	96
3388.71		Cr I	54
3388.755		Ti II	53
3388.81	P	Fe I	140
3388.88		Cr I	90
3388.912		Gd II	73
3388.966		Fe I	502
3389.325		Sm II	52
3389.748		Fe I	87
3389.83		Hf II	8
3390.082		Fe II	207
3390.25	P	Fe I	188

I A	Type	Element	Multiplet No.
3390.25		O II	9
3390.37	P	O IV	3
3390.396		Co I	102
3390.498		Gd II	73
3390.515		Ce II	145
3390.56		Ne II	12
3390.682		Ti I	86
3390.77		Cr I	236
3390.783		Eu II	
3390.878		Gd II	73
3391.01		V II	121
3391.050		Ni I	5
3391.11		Cr I	236
3391.294		Gd II	73
3391.303		Fe II	117
3391.372		Cr I	254
3391.434		Cr II	3
3391.84	P	Fe I	678
3391.85		A III	6
3391.96		Zr II	1
3391.989		Eu II	17
3392.018		Fe I	499
3392.040		Th II	5
3392.304		Fe I	83
3392.530		Gd II	7
3392.652		Fe I	85
3392.659		V II	70
3392.713		Ti I	136
3392.78		Ne II	7
3392.89		Cl II	11
3392.992		Ni I	20
3393.00		Cr II	21
3393.12		Zr II	3
3393.382		Fe I	376
3393.45		Cl III	11
3393.609		Fe I	305,376
3393.630		Gd II	91
3393.641		Nd II	
3393.86		Cr II	21
3393.915		Fe I	136
3393.920		Ce II	48
3394.085		Fe I	188
3394.26		O III	27
3394.29		Sc II	38
3394.32		Cr II	21
3394.37	P	Ti II	63
3394.574		Ti II	1
3394.58		Hf II	7
3394.583		Fe I	81
3394.63		Zr II	85
3394.916		Co I	42
3394.92		V II	80
3394.99		Hf II	63
3395.120		Gd II	91
3395.336		Fe II	117
3395.370		Co I	25
3395.62		Cr II	100
3395.87	P	Fe I	543
3395.90	P	Fe I	189
3396.184		Ni I	122
3396.187		Sm II	44
3396.34		Zr II	58
3396.386		Fe I	25
3396.457		Co I	102
3396.50	P	Ni I	118
3396.58		Eu II	30
3396.66		Zr II	103
3396.71		Fe III	18
3396.83		O IV	3
3396.85		Rh I	3
3396.978		Fe I	26
3397.07		Lu II	4
3397.221		Fe I	503
3397.499		Tm II	3
3397.560		Fe I	447
3397.580		V I	54
3397.642		Fe I	26
3397.77		La II	128
3397.82		Ni II	8
3397.89		A II	59
3397.90		Ne II	36
3398.12	P	Fe I	615
3398.226		Fe I	304
3398.355		Fe II	105
3398.634		Ti I	86
3398.811		Co I	157
3399.230		Fe I	302
3399.336		Fe I	85
3399.36		Zr II	11
3399.406		Gd II	22

I A	Type	Element	Multiplet No.
3399.54		Cr II	100
3399.80		Hf II	1
3399.951		Tm II	12
3399.991		Gd II	22
3400.08		Cr II	67
3400.110		Na II	4
3400.395		V I	46
3400.471		Co I	42
3401.067		Gd II	8
3401.166		Ni I	107
3401.521		Fe I	26
3401.617		Co I	44
3401.740		V II	106
3401.76		Ni II	4
3401.90		W II	9
3401.913		Co I	157
3401.997		V II	47
3402.064		Co I	123
3402.072		Gd II	91,149
3402.256		Fe I	614
3402.32	P	Fe II	105
3402.422		Ti II	53
3402.43		Cr II	21
3402.464		Sm II	39
3402.52		Zr II	85
3402.571		V I	46
3402.87		Zr II	91
3403.081		Gd II	73
3403.159		V II	135
3403.29	P	Cr II	21
3403.29	P	Fe I	377
3403.299		Fe I	304
3403.322		Cr II	3
3403.369		Ti I	86
3403.432		Ni I	108
3403.51		Fe III	61
3403.58		O IV	2
3403.59		Cr I	254
3403.69		Zr II	59
3404.301		Fe I	25,301
3404.34		P II	12,21
3404.357		Fe I	83
3404.43		V II	243
3404.60		Pd I	2
3404.755		Fe I	300
3404.77		Ne II	51
3404.84		Zr II	11
3404.923		Fe I	300
3404.97		Ti II	63
3405.038		Gd II	91
3405.094		Ti I	86
3405.120		Co I	23
3405.160		V I	46
3405.50	P	Ni I	122
3405.74		O III	15
3405.83		Fe I	299
3405.934		Mo I	9
3405.97	P	O IV	3
3405.977		Ce II	96
3406.06		V II	119
3406.17	P	Fe I	376
3406.18		Fe III	61
3406.442		Fe I	676
3406.76	P	Fe II	90
3406.803		Fe I	85
3406.837		V I	46
3406.88		Ne II	51
3407.00		La II	155
3407.06	P	Fe I	377
3407.205		Ti II	1
3407.22		Cr I	
3407.30		Ni II	4
3407.38		O II	44
3407.461		Fe I	83
3407.53	P	Fe I	81
3407.56		Gd II	91
3407.61		Gd II	24
3407.7		Y II	
3407.76		Hf II	29
3407.960		Mn I	26
3408.01		Cr I	
3408.09		Zr II	72
3408.13		O III	15
3408.136		N II	7
3408.14		Pt I	4
3408.676		Sm II	
3408.678		Cb II	3
3408.765		Cr II	3
3408.955		V II	120
3408.96	P	Cr II	8

I A	Type	Element	Multiplet No.
3409.177		Co I	23
3409.191		Cb II	3
3409.20		Fe I	614
3409.297		Gd II	21
3409.36		Cr I	
3409.40	P	Fe I	445
3409.578		Ni I	5
3409.60	P	Cr II	8
3409.646		Co I	24
3409.75		O IV	3
3409.79	P	Cr II	8
3409.809		Ti II	1
3409.84		O II	44
3409.87		Y II	63
3410.031		Fe I	542
3410.171		Fe I	735
3410.18		Hf II	30
3410.26		Zr II	11
3410.46		V II	119
3410.56	P	Fe I	244
3410.74		Fe III	61,62
3410.905		Fe I	25
3411.01		Cr I	
3411.134		Fe I	299
3411.353		Fe I	301
3411.38		Ne II	45
3411.68	P	Ti II	63
3411.76		La II	155
3411.76		O IV	2
3411.88	P	Fe I	298
3412.020		Gd II	73
3412.339		Co I	25
3412.47	P	Ni I	90
3412.583		Gd II	70
3412.633		Co I	6
3412.753		Gd II	23
3412.934		Cb II	3
3413.13		Ne II	45
3413.135		Fe I	85
3413.273		Gd II	91
3413.39		Zr II	60
3413.46	P	Ni I	124
3413.478		Ni I	5
3413.71		O IV	2
3413.74		Hf II	20
3413.939		Ni I	17
3414.02		Ti II	127
3414.144		Fe II	91
3414.192		V II	135
3414.207		Gd II	107
3414.46		A II	107
3414.65		Zr II	73
3414.66		Zr I	17
3414.765		Ni I	19
3414.82		Ne II	20
3414.879		V II	135
3415.29		O III	15
3415.47		Cr II	100
3415.519		Co I	5
3415.530		Fe I	83
3415.67	P	Ni I	123
3415.78		Co II	2
3415.91		V II	169
3416.021		Fe II	16
3416.52	P	Fe I	708
3416.674		Sc I	21
3416.688		Fe I	142
3416.87		Ne II	21
3416.948		Gd II	22
3416.957		Ti II	53
3417.154		Co I	23
3417.273		Fe I	26
3417.330		Gd II	91
3417.353		Co I	135
3417.353		Ru I	3
3417.450		Ce II	100
3417.673		Co I	122
3417.71		Ne II	20
3417.795		Co I	19
3417.842		Fe I	81
3417.88	P	Ti I	86
3417.9036		Ne I	4
3418.02	P	Fe II	104
3418.151		Sm II	
3418.176		Fe I	577
3418.507		Fe I	81
3418.514		Sm II	47
3418.528		Sc I	21
3418.733		Gd II	7
3419.069		Gd II	24

I A	Type	Element	Multiplet No.
3419.10		Zr II	2
3419.157		Fe I	576
3419.25		P II	3
3419.358		Sc I	21
3419.49		Fe III	11,49
3419.706		Fe I	377
3419.87		O II	
3420.15		V II	119
3420.184		Fe II	89
3420.474		Co I	42
3420.54		La II	126
3420.61		O II	
3420.709		V II	105
3420.741		Ni I	9
3420.790		Co I	102
3420.795		Mn I	
3420.82		K III	1
3421.029		Co I	119
3421.20		Cr II	3
3421.22	P	Ni I	105
3421.24		Pd I	3
3421.342		Ni I	122
3421.62		Cr II	60
3421.628		Co I	101
3421.64		A II	57
3421.83		K III	4
3421.97		Fe III	11
3422.332		Ni I	105
3422.466		Gd II	2
3422.499		Fe I	444
3422.656		Fe I	85
3422.661		Ti II	63
3422.708		Ce II	144
3422.739		Cr II	3
3422.751		Gd II	8
3422.878		Ni I	122
3422.900		Co I	42
3423.172		Ti I	120
3423.35		Co I	121
3423.711		Ni I	20
3423.82		Zr II	
3423.85		Co II	2
3423.853		Ce II	131
3423.9		La II	144
3423.92		Gd II	7
3424.16		Y I	
3424.17	P	Fe II	116
3424.284		Fe I	81
3424.43	P	Cr II	8
3424.500		Co I	103
3424.592		Gd II	22
3424.64		Zr II	85
3424.82		Zr II	2
3424.88		P II	3
3425.009		Fe I	541
3425.022		Eu II	20
3425.070		V I	
3425.082		Tm II	7
3425.09	P	Cr II	8
3425.432		Cb II	7
3425.57		O IV	3
3425.582		Fe II	5
3425.624		Gd II	91
3425.630		Tm II	3
3425.930		Gd II	23
3425.96		Cr I	158
3426	P	O VI	6
3426.09	P	Fe I	502
3426.13		Cr II	111
3426.20		P II	3
3426.208		Ce II	44
3426.337		Fe I	135
3426.342		Gd II	73
3426.383		Fe I	25,82
3426.562		Cb II	7
3426.583		Ce II	51
3426.637		Fe I	82
3426.67	P	Fe I	615
3426.81	P	Fe II	103
3427.002		Fe I	26
3427.121		Fe I	81
3427.332		Ce III	2
3427.362		Gd II	91
3427.57		La II	132
3428.01	P	Fe I	616
3428.192		Fe I	81
3428.37		Hf II	2
3428.41	P	Fe I	302
3428.42	P	Ni I	123
3428.467		Gd II	90
3428.64	P	Fe II	90
3428.67		O III	15
3428.746		Fe I	836
3428.76		Ne II	42
3428.916		Al II	25
3428.94		Cr II	99
3428.955		Ti I	168
3429.206		Sc I	21
3429.42		Y II	77
3429.483		Sc I	21
3429.64		A II	107
3429.80	P	Fe I	244
3429.82	P	Fe I	540
3430.15	P	Fe II	89
3430.238		Gd II	91
3430.29		Zr I	17
3430.42		Cr II	67
3430.44		A II	59
3430.53		Zr II	11
3430.60		O III	15
3430.772		Ru I	3
3430.874		Ti I	120
3430.88	P	Fe I	614
3431.08	P	Ti I	135
3431.195		Tm II	12
3431.284		Cr I	53
3431.358		Sc I	21
3431.45	P	Cr II	8
3431.57		Zr II	59
3431.582		Co I	6
3431.59		Cr I	53
3431.69		Cr I	53
3431.815		Fe I	376,676
3431.995		Cr I	53
3432.023		Fe I	377
3432.12	P	Cr II	8
3432.31		Cr I	53
3432.318		Co I	102
3432.32		Cr II	8
3432.41		Zr II	58
3432.64		A II	107
3432.708		Cb II	
3432.81		La II	113
3432.97		Fe III	67
3432.994		Gd II	22
3433	P	O VI	8
3433.045		Co I	23
3433.091		Ce II	249
3433.30		Cr II	3
3433.44		Pd I	11
3433.558		Ni I	19
3433.598		Cr I	52
3433.767		V II	134
3433.90		Zr II	58
3434	P	O VI	9
3434.024		V II	104
3434.029		Fe I	300
3434.112		Cr I	52
3434.46		V II	134
3434.57	P	Rh II	1
3434.69	P	Ti I	121
3434.893		Rh I	2
3434.95	P	Fe I	776
3435.38		V II	133
3435.408		Ti II	98
3435.432		Ti I	
3435.488		Cr I	53
3435.489		Ni I	53
3435.555		Sc I	21
3435.679		Cr I	52
3435.819		Cr I	53
3436.045		Fe I	614
3436.112		Fe II	91
3436.187		Cr I	52
3436.304		Ce II	94
3436.393		V II	79
3436.737		Ru I	4
3437.006		Ir I	3
3437.046		Fe I	539
3437.16		Zr II	33
3437.162		N II	13
3437.280		Ni I	3
3437.631		Fe I	187
3437.680		Co I	162
3437.93		Cr II	111
3437.958		Fe I	614
3438	P	O VI	7
3438.10	P	Fe I	300
3438.14		A II	58
3438.23		Zr II	1
3438.24		Hf II	77
3438.306		Fe I	
3438.46		Cr II	110
3438.713		Co I	87
3438.97		Ne II	45
3438.978		Mn II	1
3439.050		Fe I	299
3439.208		Gd II	23
3439.305		Ti I	120
3439.352		Al I	2
3439.40		Sc I	21
3439.784		Gd II	22
3439.831		Ce II	197
3439.990		Gd II	7
3440.25	P	Fe II	156
3440.39		O III	13
3440.502		Sm II	54
3440.589		Cb II	6
3440.610		Fe I	6
3440.74	P	Fe I	301
3440.80		Ne II	45
3440.989		Fe I	6
3440.999		Eu II	13
3441.115		Cr I	52
3441.14	P	Cr II	8
3441.210		Ce II	45
3441.40		Pd I	10
3441.439		Cr I	52
3441.505		Tm II	
3441.790		Gd II	39
3441.983		Mn II	3
3442.044		Ni I	104
3442.12		Ne II	36
3442.239		Fe II	89
3442.364		Fe I	134
3442.380		Ce II	196
3442.559		Ni I	124
3442.58		Cr I	158
3442.672		Fe I	26
3442.79	P	Fe II	76
3442.918		Co I	6
3442.979		Fe I	499,776
3442.98	P	Co I	42
3443	P	N IV	7
3443.203		Co I	
3443.387		Ti II	99
3443.57		Zr II	73
3443.609		Ce III	1
3443.644		Co I	22
3443.644		Ti I	120
3443.651		Al I	2
3443.70		Ne II	42
3443.790		Cr I	110
3443.83	P	Fe II	16
3443.878		Fe I	6
3443.989		Sc I	21
3444.10		O III	15
3444.251		Ni I	122
3444.306		Ti II	6
3444.34		Cr II	111
3444.403		Ti I	120
3444.76	P	Fe II	145
3444.871		Al I	2
3444.899		Ti I	46
3445	P	N IV	7
3445.04		Cr II	110
3445.10		Cr I	51
3445.151		Fe I	81
3445.20	P	Cr II	148
3445.566		Ti I	46
3445.58	P	Fe II	76
3445.618		Cr I	51
3446.0	P	Mn II	9
3446.085		Mo II	1
3446.088		Co I	162
3446.263		Ni I	20
3446.38		K I	4
3446.40		Co II	2
3446.603		Ti I	168
3446.721		Ce II	56
3446.73		O III	25
3446.77		Fe III	88
3446.791		Fe I	244
3446.947		Fe I	26
3447.015		Cr I	52
3447.22		O III	25
3447.278		Fe I	82
3447.281		Co I	161
3447.36		Zr I	16
3447.41		K I	4

I A	Type	Element	Multiplet No.
3447.430		Cr I	52
3447.594		He I	7
3447.760		Cr I	52
3447.98		O II	27
3448.05	P	O III	25
3448.19	P	Fe I	186
3448.255		Ti I	46
3448.358		Co I	163
3448.433		Fe II	90
3448.478		Fe I	444
3448.503		Sc I	21
3448.542		Mo II	1
3448.63	P	Fe III	27
3448.69		V II	118
3448.786		Fe I	372
3448.82		Y II	17
3448.869		Fe I	242
3448.967		Ir I	1
3449.06	P	Fe I	442
3449.170		Co I	22
3449.28		Cr II	111
3449.441		Co I	22
3449.5	P	Mn II	9
3449.616		Gd II	7
3449.874		Ti I	46
3450.00	P	Cr I	90
3450.14	P	Fe I	242
3450.328		Fe I	82
3450.376		Gd II	22
3450.735		Ti I	46
3450.84		Cr II	60
3450.94		O III	25
3451.046		V II	118
3451.228		Fe II	208
3451.233		Gd II	22
3451.318		Fe II	
3451.33		O III	25
3451.41		B II	1
3451.614		Fe II	207
3451.628		Fe I	139
3451.66	P	Fe I	241
3451.88		Re I	2
3451.914		Gd II	70
3451.915		Fe I	81
3452.18		Co I	160
3452.18		La II	30
3452.273		Fe I	25
3452.31	P	Fe III	49
3452.33	P	Fe II	89
3452.470		Ti II	99
3452.55		Fe III	88
3452.670		Al I	2
3452.890		Ni I	17
3453.022		Fe I	301
3453.087		V II	132
3453.10		Ne II	21
3453.17		La II	46
3453.23		Cr I	253
3453.31		O II	71
3453.328		Cr I	52
3453.514		Co I	22
3453.595		Fe II	
3453.654		Ti I	46
3453.665		Tm II	7
3453.743		Cr I	52
3453.78		V II	132
3453.84	P	Cr I	90
3454	P	N IV	7
3454.10		A II	44
3454.145		Gd II	7
3454.16		Ni II	1
3454.165		Ti I	168
3454.35		Fe III	86
3454.368		Ce III	2
3454.57		Zr II	59
3454.90		O III	25
3454.904		Gd II	7
3454.98		Cr II	136
3455.04		Mn I	41
3455.12		O III	25
3455.237		Co I	6
3455.281		Cr I	51
3455.602		Cr I	51
3455.755		Ti I	46
3456.00	P	Fe II	4
3456.390		Ti II	99
3456.661		Ti I	134
3456.68		Ne II	28
3456.924		Co I	5
3456.928		Fe II	76

I A	Type	Element	Multiplet No.
3457.047		Gd II	
3457.088		Y II	77
3457.090		Fe I	374,835
3457.153		V II	147
3457.16	P	Ne II	51
3457.298		Ti I	46
3457.494		Ti I	46
3457.512		Fe I	187
3457.56		Zr II	20
3457.62		Cr II	135
3457.809		Mn II	9
3457.99		O II	81
3458.020		Ti I	46
3458.028		Co I	101
3458.090		Cr I	253
3458.13	P	Fe II	10
3458.18		Fe III	100
3458.230		Al I	2
3458.304		Fe I	139
3458.474		Ni I	19
3458.91		Fe III	27
3458.93		Zr II	58
3459.03		Ti II	125
3459.07		O II	81
3459.29		Cr II	136
3459.29	P	Fe I	576
3459.374		Ce III	3
3459.38		Ne II	51
3459.429		Fe I	297
3459.431		Ti I	
3459.52		O III	25
3459.61	P	Fe I	577
3459.911		Fe I	501
3459.95	P	Fe I	133
3459.95		Zr II	90
3459.98		O II	25
3460.03		Cr II	60
3460.038		Mn II	1
3460.31		La II	119
3460.312		Mn II	3
3460.430		Cr I	141
3460.47		Re I	2
3460.719		Co I	35
3460.76		Pd I	2
3460.776		Gd II	73
3461.0		Y II	40
3461.173		Co I	162
3461.28		Cr II	148
3461.34		N IV	7
3461.38		Eu II	13
3461.496		Ti II	6
3461.580		V II	6
3461.652		Ni I	17
3461.952		Gd II	23
3462.040		Rh I	3
3462.108		Tm II	
3462.353		Fe I	79
3462.494		Na II	4
3462.65		Hf II	6
3462.73		Cr II	2
3462.748		Mn I	41
3462.804		Co I	23
3462.808		Fe I	373
3462.878		Mn II	12
3462.997		Gd II	8
3463.02		Zr II	90
3463.079		V II	104
3463.205		Ti I	85
3463.305		Fe I	48
3463.330		Mn II	12
3463.36		N IV	7
3463.499		Co I	42
3463.52		W II	7
3463.63		Al II	55
3463.831		V II	168
3463.974		Fe II	4
3463.984		Gd II	40
3464.02		Cr II	2
3464.043		Mn II	12
3464.132		Gd II	90
3464.14		A II	70
3464.17		V II	104
3464.27		Fe III	16
3464.457		Sr II	4
3464.497		Fe II	114
3464.72		Re I	2
3464.82		Cr I	51
3464.914		Fe I	241
3465.037		Mn II	12
3465.245		Cr I	51

I A	Type	Element	Multiplet No.
3465.25		V II	160
3465.562		Ti II	99
3465.57		Cr I	51
3465.62		Ni II	4
3465.63		Zr I	17
3465.792		Co I	5
3465.80		A II	96
3465.863		Fe I	6
3466.15		O III	25
3466.25		Cr II	77,148
3466.279		Fe I	185
3466.336		Mn II	12
3466.34		A II	44,56
3466.406		Gd II	53
3466.501		Fe I	24
3466.50		V II	58
3466.85	P	Fe II	156
3466.90		O III	25
3466.952		Gd II	23
3467.022		Cr I	141,253
3467.09	P	Cr II	2
3467.12		Ni I	123
3467.200		Ti I	84
3467.267		Gd II	22
3467.33		V II	58
3467.502		Ni I	3
3467.715		Cr I	110
3467.732		Ni I	123
3467.874		Sm II	54
3467.88		Y II	17
3468.083		Gd II	21
3468.113		Ce II	178
3468.32		K II	1
3468.476		Ca I	10
3468.680		Fe II	114
3468.849		Fe I	242
3468.973		Co I	159
3468.989		Gd II	40
3469.012		Fe I	614
3469.307		Gd II	39
3469.390		Fe I	375
3469.486		Ni I	8
3469.528		V II	58
3469.590		Cr I	141
3469.683		Co I	137
3469.834		Fe I	242
3469.94		Zr II	59
3470.18		Y II	40
3470.242		Fe II	89
3470.263		V II	58
3470.27		A II	
3470.401		Cr I	77
3470.42		O II	27
3470.529		Cr I	77
3470.657		Rh I	3
3470.72		Cr I	77
3470.81		O II	27
3470.83		P II	12
3470.866		Nd II	70
3470.894		Ce III	1
3471.14		Zr II	114
3471.18		Zr I	15
3471.27		Fe I	82
3471.35		Ni II	4
3471.350		Fe I	130
3471.382		Co I	161
3471.49		Cr I	77
3471.59		A II	57
3471.63	P	Ni I	124
3471.80		He I	44
3472.07		Cr II	135
3472.196		Co I	161
3472.38		Hf I	1
3472.48		Lu II	4
3472.545		Ni I	20
3472.5711		Ne I	2
3472.707		Co I	160
3472.764		Cr I	77
3472.793		Ti I	271
3472.88		P II	2
3472.886		Fe II	156
3472.906		Cr I	111
3473.01	P	Fe I	576
3473.219		Gd II	7
3473.23	P	Fe I	576
3473.497		Fe I	26
3473.612		Cr I	77
3473.82		Fe III	27
3473.825		Fe II	
3474.018		Co I	4,23

I A	Type	Element	Multiplet No.
3474.037		Mn II	3
3474.124		Mn II	3
3474.379		Cr I	
3474.41	P	Fe III	27
3474.530		Co I	24
3474.56		N IV	7
3474.763		Ca I	10
3474.780		Rh I	2
3474.84		La II	143
3474.87		Cr I	141
3474.887		Sr II	4
3474.94		Fe III	90
3474.94		O II	8
3475.13		Cr II	2
3475.25	P	Fe II	4
3475.25		Ne II	35
3475.36	P	Cr I	141
3475.450		Fe I	6
3475.651		Fe I	78
3475.74	P	Fe II	4
3475.867		Fe I	186,373
3476.252		V II	58
3476.336		Fe I	133,835
3476.360		Co I	161
3476.452		Ti I	85
3476.63		Ni I	123
3476.704		Fe I	6
3476.74		A II	44
3476.842		Ce II	132
3476.853		Fe I	242
3476.982		Ti II	6
3477.007		Fe I	139
3477.161		Cr I	141
3477.181		Ti II	6
3477.514		V II	58
3477.69		Ne II	21
3477.828		Rh II	4
3477.836		Co I	161
3477.850		Fe I	82
3477.864		Ni I	124
3477.98	P	Fe I	836
3478.17		Cr II	109
3478.24		A II	45
3478.29		Zr II	2
3478.292		Ni I	173
3478.382		Fe I	185
3478.50		Zr II	84
3478.55	P	Fe II	16
3478.555		Co I	120
3478.69		N IV	1
3478.74		P II	2,18
3478.744		Co I	67
3478.77		Cr I	141
3478.788		Fe I	137
3478.79		Cb II	7
3478.906		Rh I	6
3478.918		Ti I	84
3478.961		V II	182
3478.97		He I	43
3478.98		Hf II	61
3479.02		Zr II	20
3479.14		Cr I	141
3479.264		Ni I	105
3479.27		Al I	17
3479.29		Hf II	2
3479.39		Zr II	46
3479.53		Ne II	49
3479.567		Cb II	6
3479.683		Fe I	443,812
3479.78		Al I	17
3479.82		Cl II	
3479.837		V II	6
3479.914		Fe II	4
3480.012		Co I	67
3480.183		Ni I	123,124
3480.28		Cr I	141
3480.40		Zr II	58
3480.52		A II	57
3480.525		Ti I	84
3480.547		Gd II	23
3480.55		A III	2
3480.75		Ne II	49
3480.897		Ti II	22
3481.11		K III	3
3481.126		Ti I	271
3481.14		Zr II	46
3481.17		Pd I	2
3481.275		Gd II	22
3481.303		Cr I	77
3481.44		Zr II	59

I A	Type	Element	Multiplet No.
3481.536		Cr I	110
3481.558		Fe I	132
3481.675		Ti I	271
3481.750		Tm II	10
3481.797		Gd II	22
3481.92	P	Fe II	102
3481.96		Ne II	6
3482.05	P	Fe II	10
3482.06		Mn II	9
3482.36		Fe III	103
3482.39	P	Fe II	133
3482.426		Fe II	
3482.56	P	Cr II	148
3482.58		Al I	17
3482.58		Cr II	67
3482.602		Gd II	40
3482.70		Si III	
3482.73		Ni I	120
3482.905		Mn II	3
3482.98		N IV	1
3483.006		Fe I	24
3483.010		Ti I	22
3483.410		Co I	23
3483.54		Zr II	33
3483.59	P	Zr II	103
3483.62	P	Ni I	120
3483.774		Ni I	6
3483.80		Co I	5
3483.80		Ti II	125
3484.15		Cr II	2
3484.16	P	Cr II	185
3484.18		Fe III	100
3484.32		V II	168
3484.348		Fe II	115
3484.39		La II	113
3484.65		V II	6
3484.84		Fe I	185
3484.90		N IV	1
3484.97		Fe I	138
3485.054		Ce II	44
3485.110		Ni I	118
3485.16		Hf II	43
3485.31		Zr II	57
3485.342		Fe I	78
3485.368		Co I	162
3485.689		Ti I	84
3485.700		Co I	68
3485.728		Fe II	133
3485.82	P	V II	131
3485.867		V I	81
3485.888		Ni I	17
3485.916		V II	6
3486.08	P	Fe II	102
3486.14		W II	11
3486.556		Fe I	79
3486.93		Si III	
3487.008		V I	81
3487.11		Fe III	90
3487.33		A II	56
3487.57		Hf II	55
3487.598		Ca I	10
3487.712		Co I	65
3487.721		He I	42
3487.80	P	Ti I	119
3487.990		Fe II	4
3488.18		O II	7
3488.293		Ni I	121
3488.453		Cr I	109
3488.553		Ce II	187
3488.676		Mn II	3
3488.92		Fe III	60
3489.07		Cr II	135
3489.07	P	Fe III	26
3489.17	P	Fe II	102
3489.281		Gd II	106
3489.399		Co I	36
3489.45		Cr II	109,185
3489.48	P	Fe III	27
3489.670		Fe I	442
3489.739		Ti II	6
3489.79		Pd I	8
3489.84		O IV	14
3489.947		V II	131
3490.04	P	Fe I	331
3490.45		P II	19
3490.47	P	Fe I	835
3490.575		Fe I	6
3490.62		He I	41
3490.736		Co I	20
3490.74	P	Fe I	133

I A	Type	Element	Multiplet No.
3490.765		Ti I	22
3490.89		A II	30
3491.053		Ti II	6
3491.16		Fe III	103
3491.19	P	Ti II	118
3491.24		A II	44
3491.316		Co I	6
3491.52		A II	44
3491.954		Gd II	6
3491.987		Co I	159
3492.24		O IV	14
3492.39		Ti II	125
3492.956		Ni I	18
3493.163		V II	6
3493.280		Ti I	22
3493.29		Fe I	48
3493.34	P	Fe II	102
3493.468		Fe II	114
3493.57	P	Fe I	327
3493.69		Fe I	297
3494.15		Fe I	137
3494.25	P	Fe I	185
3494.404		Gd II	7
3494.52		Cr II	2
3494.66		O II	70
3494.672		Fe II	16
3494.703		Ni I	154
3494.967		Cr I	100
3495.16	P	Fe I	102
3495.285		Fe I	238
3495.37		Cr II	2
3495.44		O II	70
3495.56		Cr II	
3495.6	P	Ni II	4
3495.616		Fe II	115
3495.682		Co I	22
3495.75		Hf II	10
3495.754		Ti I	84
3495.831		Mn II	3
3495.94		Hf II	30
3495.960		Ti I	22
3496.070		Co I	136
3496.08		Y II	3
3496.18		Zr II	1
3496.19		Fe I	186
3496.27		O II	7
3496.27	P	V II	131
3496.29		Fe III	103
3496.29	P	Ti II	118
3496.350		Ni I	118
3496.60	P	Fe I	572
3496.67	P	Fe II	88
3496.681		Co I	19
3496.794		Co I	161
3496.814		Mn II	3
3497.00	P	V II	131
3497.00		Zr II	10
3497.031		V II	146
3497.115	P	Fe I	78
3497.137		Fe I	78
3497.340		S III	
3497.39		V II	131
3497.49		Hf I	1
3497.536		Mn II	3
3497.73	P	Fe II	114
3497.81	P	Fe II	133
3497.843		Fe I	6
3497.89	P	Fe I	499
3497.90		Zr II	58,84
3498.12	P	V II	131
3498.18	P	Fe I	326
3498.19	P	Ni I	2
3498.641		He I	40
3498.83	P	V II	117
3498.942		Ru I	4
3499.099		Ti I	84
3499.49		A II	5
3499.57		Fe III	26
3499.58		Zr II	9
3499.67		A III	2
3499.823		V II	5
3499.877		Fe II	115
3500.15		Zr II	123
3500.29		Fe III	48
3500.340		Ti II	6
3500.5		O II	80
3500.564		Fe I	238
3500.852		Ni I	6
3501.107		Ba I	3
3501.32	P	Fe III	48

I A	Type	Element	Multiplet No.
3501.33		Zr I	14
3501.416		F II	3
3501.453		Ce II	67
3501.67		O II	70
3501.73		Co II	2
3501.75		Fe III	26,48
3502.2	P	O IV	13
3502.278		Co I	21
3502.381		He I	39
3502.46	P	Fe I	576
3502.524		Rh I	2
3502.595		Ni I	3
3502.63		Co I	6
3502.85	P	Fe I	577
3502.954		F II	3
3502.998		Co I	135
3503.00		P II	2
3503.095		F II	3
3503.206		Gd II	90
3503.36		Cr II	157
3503.38		Cr I	109
3503.474		Fe II	4
3503.58		A III	2
3503.61		Ne II	28
3503.717		Co I	88
3503.760		Ti I	22
3503.96	P	Fe III	48
3504.40		Fe III	48
3504.432		V II	6
3504.455		Fe I	371
3504.48		Sb I	2
3504.596		Ce III	6
3504.728		Co I	135
3504.773		Ti I	167
3504.866		Fe I	131
3504.890		Ti II	88
3505.065		Fe I	498
3505.133		Co I	160
3505.22		Hf II	7
3505.44		Cl II	64
3505.45	P	Ti II	6
3505.47		Zr II	90
3505.512		Gd II	22
3505.614		F II	3
3505.67		Zr II	1
3505.690		V I	81
3505.901		Ti II	88
3506.02		O II	70
3506.04		Zr II	84
3506.23		Fe I	327
3506.310		Co I	21
3506.40		Fe I	
3506.48		Zr II	84
3506.498		Fe I	130
3506.57		V II	193
3506.58	P	Fe I	327
3506.61		Cr II	108,157
3506.643		Ti I	22
3506.843		V I	81
3506.93		Fe III	48
3507.14	P	Fe I	835
3507.316		Rh I	2
3507.37		P II	18
3507.387		Fe II	16
3507.39		Fe I	500
3507.39		Lu II	1
3507.426		Ti I	
3507.534		V II	159
3507.66		Zr II	58
3507.694		Ni I	3
3507.945		Ce II	51
3507.964		Y II	47
3508.09		Cr I	
3508.213		Fe II	4
3508.470		Ce II	114
3508.494		Fe I	442
3508.52		Fe I	239
3508.67	P	Cr II	77
3508.731		Eu II	13
3508.81		Cr I	
3508.852		Eu II	13
3508.94		Cl II	64
3509	P	O VI	5
3509.024		V II	117
3509.12		Fe I	326
3509.20	P	V II	117
3509.32		Zr I	15
3509.39		Cl II	64
3509.73	P	Fe I	327
3509.78		A II	44

I A	Type	Element	Multiplet No.
3509.843		Co I	22
3509.844		Ti II	88
3509.870		Fe I	78
3509.971		Mn II	9
3510.00		La II	15
3510.133		Gd II	21
3510.18	P	Fe I	836
3510.262		Cb II	
3510.338		Ni I	18
3510.40		Cr I	263
3510.426		Co I	6
3510.443		Fe I	139
3510.46		Zr II	20
3510.538		Cr I	109
3510.840		Ti II	88
3511.227		Sm II	12
3511.25	P	Fe II	102
3511.42		V II	57
3511.55		Zr II	124
3511.613		Ni I	152
3511.626		Ti I	22
3511.748		Fe I	238
3511.84		Cr II	2
3511.93		Fe III	26
3511.94		Ni I	124
3512.08		Fe I	327
3512.13		V II	193
3512.219		Gd II	38
3512.239		Fe I	326
3512.34	P	Fe III	26
3512.496		Gd II	89
3512.511		He I	38
3512.640		Co I	21
3512.67		Zr II	57
3512.68	P	Fe I	327
3512.70		Cr I	109
3512.74	P	Fe I	613
3512.80	P	Fe I	330
3512.93		La II	44
3512.95		Fe I	501
3513.03		Cr II	107
3513.065		Fe I	48
3513.09		Ti II	6
3513.22		Cl II	64
3513.478		Co I	5
3513.59	P	Fe I	327
3513.638		Ir I	2
3513.69		Cl II	64
3513.820		Fe I	24
3513.877		V II	117
3513.88		K III	1
3513.933		Ni I	17
3513.933		Ni II	1
3514.21		Co II	1
3514.29	P	Fe III	27
3514.39		A II	44
3514.422		V II	57
3514.48	P	Fe I	47
3514.62		Fe I	183
3514.64		Zr II	114
3514.87		Fe III	26
3515.054		Ni I	19
3515.41	P	Fe I	243
3515.421		Cb II	6
3515.538		Be I	7
3515.57		Fe III	54
3515.818		Fe II	208
3516.00		V II	6
3516.05		Al II	54
3516.234		Ni I	123
3516.403		Fe I	442
3516.55		Fe I	326
3516.58	P	Fe III	54
3516.675		Co I	65
3516.838		Ti I	167
3516.92		O II	69
3516.95		Pd I	1
3517.03	P	Ni I	123
3517.14		La III	1
3517.298		V II	6
3517.327		He I	37
3517.380		Ce II	230
3517.48		Co II	1
3517.53	P	V II	57
3517.890		Gd II	88
3517.90		A II	5
3518.23	P	Fe I	575
3518.340		Co I	36
3518.61		P II	2
3518.62		Cr II	107

I A	Type	Element	Multiplet No.
3518.632		Gd II	7
3518.634		Ni I	124
3518.68		Fe I	327
3518.75		Hf II	43
3518.86		Fe I	78
3519.077		Ce II	92
3519.24		Tl I	2
3519.25		Fe III	54
3519.60		Zr I	13
3519.67	P	Ti II	118
3519.72	P	Fe II	88
3519.766		Ni I	5
3519.85		Fe III	59
3519.939		Ti I	22
3520.00		A II	56
3520.022		V II	5
3520.075		Co I	4
3520.253		Ti II	98
3520.4717		Ne I	7
3520.522		Ce II	55
3520.547		V II	57
3520.55		Cr I	235
3520.72		La II	127
3520.85		Fe I	238
3520.87		Zr II	19
3520.9	P	O IV	13
3520.91	P	Zr II	59
3521.09		Eu II	24
3521.264		Fe I	24
3521.27		A II	56
3521.28	P	Zr II	84
3521.53		Cr I	263
3521.567		Co I	20
3521.64	P	Fe II	10
3521.731		Co I	24,100
3521.833		Fe I	78
3521.836		V II	57
3521.880		Ce II	211
3521.98		A II	45
3522.044		Nd II	71
3522.05	P	Fe II	10
3522.063		Mo II	1
3522.13		Cr II	184
3522.14		Cl II	64
3522.268		Fe I	326
3522.72		Ne II	35
3522.73	P	Fe I	538
3522.856		Co I	159
3522.896		Fe I	330
3523.02		Hf I	3
3523.074		Ni I	34
3523.18	P	Fe I	673
3523.30		Fe I	326
3523.423		Co I	21
3523.444		Ni I	16
3523.47	P	Ni I	154
3523.701		Co I	66
3524.04	P	Fe I	238
3524.075		Fe I	239
3524.196		Gd II	6
3524.236		Fe I	130
3524.54	P	Cr II	107
3524.541		Ni I	18
3524.646		Mo II	1
3524.713		V II	5
3524.87		Ti II	118
3525.161		Ti I	167
3525.17		Fe III	60
3525.44		Cr I	
3525.81		Zr II	9
3525.856		Fe I	329
3525.872		Co I	63
3526.016		Fe I	240
3526.039		Fe I	6
3526.13		Cl II	64
3526.167		Fe I	24
3526.23		Fe I	327
3526.377		Fe I	326
3526.465		Fe I	131
3526.540		Ni I	155
3526.673		Fe I	326
3526.69	P	Fe I	497
3526.78	P	Fe I	321
3526.847		Co I	4
3526.96	P	Fe I	835
3527.08		Cr I	274
3527.11		P II	21
3527.42		Zr II	103
3527.792		Fe I	326
3527.867		V II	117

I A	Type	Element	Multiplet No.
3527.90	P	Fe I	296
3527.982		Ni I	6
3528.024		Rh I	3
3528.23		Cr II	109
3528.24	P	Fe I	182
3528.545		Gd II	23
3528.602		Os I	1
3528.891		Ni I	154
3528.94	P	Fe I	23
3529.032		Co I	5
3529.38		Tl I	2
3529.531		Fe I	537
3529.57		W II	12
3529.625		Ni I	76
3529.73		Cr II	89
3529.735		V I	53
3529.816		Co I	22
3529.818		Fe I	326
3529.99		Zr II	84
3530.03		Cl III	10
3530.22		Zr I	52
3530.25		P II	21
3530.385		Fe I	326
3530.45		V II	57
3530.487		He I	36
3530.580		Ti I	22
3530.595		Ni I	121
3530.600		Sm II	20
3530.67		La II	12
3530.75		K II	7
3530.765		V II	5
3530.85		Zr II	114
3531.151		Eu II	24
3531.22		A II	5
3531.43		Fe I	182
3531.44		Cr I	263
3531.48		V II	4
3531.848		Mn I	18
3531.998		Mn I	18
3532.121		Mn I	18
3532.19		A II	57
3532.285		V II	192
3532.647		Fe II	132
3532.65		N I	
3532.69	P	Fe II	75
3532.888		Cr I	
3533.008		Fe I	326
3533.043		Na II	1
3533.19	P	Fe II	75
3533.201		Fe I	326
3533.22		Zr I	14
3533.356		Co I	5
3533.67		P II	21
3533.676		V I	53
3533.757		V I	53
3533.868		Ti II	98
3533.97		O II	69
3534.051		Ce II	44
3534.14		V II	12
3534.52		Fe I	811
3534.688		Mo II	1
3534.769		Co I	118
3534.914		Fe I	48
3535.04		Mg II	12
3535.16		Zr I	59
3535.18	P	V II	4
3535.304		Cb I	4
3535.33		A II	44
3535.408		Ti II	98
3535.522		Tm II	
3535.54		Hf II	9
3535.628		Fe II	75
3535.653		Sm II	44
3535.729		Sc II	11
3536.30		P II	20
3536.556		Fe I	326
3536.576		Tm II	3
3536.820		He I	35
3536.838		F II	6
3536.89		Cr I	50
3536.94		Zr II	10
3537.243		Ni I	153
3537.25		Cr I	50
3537.491		Fe I	239
3537.634		Ni I	120
3537.707		Co I	68
3537.729		Fe I	239
3537.75		Ca III	2
3537.896		Fe I	327
3537.99		Ne II	50

I A	Type	Element	Multiplet No.
3538.142		Rh I	8
3538.238		V II	4
3538.31		Fe I	775
3538.55		Fe I	137
3538.77		Fe I	811
3538.86		Mg II	12
3539.00		Cr II	157
3539.05		Zr II	102
3539.086		Ce II	118
3539.589		Th II	1
3539.94		Ne II	50
3540.121		Fe I	329
3540.28	P	Cr II	89
3540.530		V I	45
3540.709		Fe I	23
3540.961		Cb II	4
3541.083		Fe I	326
3541.22	P	Fe I	47
3541.341		V II	145
3541.44		Ti IV	
3541.765		F II	6
3542.00		Ni I	119
3542.076		Fe I	326
3542.152		Eu II	17
3542.243		Fe I	128
3542.28		Ne II	50
3542.480		V II	145
3542.56	P	Fe I	321
3542.65		Zr II	113
3542.657		V I	45
3542.768		Gd II	51
3542.90		Ne II	34
3542.976		Co I	19
3543.09	P	Fe I	182
3543.16		A II	
3543.256		Co I	64
3543.352		Nd II	
3543.39		Fe I	183
3543.500		V I	53
3543.669		Fe I	734
3543.948		Rh I	6
3544.001		Y II	56
3544.631		Fe I	239
3544.88	P	Fe I	154
3544.985		Gd II	51
3545.03		Co II	1
3545.16		Ni I	76
3545.190		V II	5
3545.339		V I	53
3545.58		A II	70
3545.603		Ce II	44
3545.639		Fe I	321
3545.797		Gd II	2
3545.832		Fe I	536
3545.84		A II	106
3546.15	P	Cr II	134
3546.190		Ce II	131
3546.21		Fe I	183
3546.22		Ne II	27
3546.707		Co I	41
3547.029		Ti I	133
3547.07		V II	69
3547.10		Cr II	134
3547.203		Fe I	321,613
3547.69		Zr I	13
3547.802		Mn I	18
3547.98		Cr I	
3548.029		Mn I	18
3548.037		Fe I	496
3548.185		Ni I	3,20
3548.202		Mn I	18
3548.438		Co I	41
3548.51		A II	56
3548.55	P	Fe II	132
3548.731		Cr I	76
3549.02		Y II	9
3549.030		V II	103
3549.08		W II	13
3549.27	P	Ti II	117
3549.365		Gd II	7
3549.51		Zr II	84
3549.61		Mg II	11
3549.72		S III	
3549.868		Fe I	48
3550.03		A II	68
3550.11	P	Zr II	124
3550.19	P	Ti II	117
3550.46		Zr I	12
3550.592		Co I	4
3550.635		Cr I	

I A	Type	Element	Multiplet No.
3550.82		La II	15
3551.11	P	Fe I	321
3551.16		P II	12,21
3551.52		Ne II	25
3551.534		Ni I	5
3551.666		Co I	67
3551.94		Zr II	1
3552.00		Al II	53
3552.112		Fe I	499
3552.42	P	Fe I	182
3552.50	P	Cr II	89
3552.516		Eu II	19
3552.70		Hf II	7
3552.70		Y I	8
3552.720		Co I	6
3552.828		Fe I	321
3552.85	P	Ti II	15
3552.953		Cr I	
3552.989		Co I	67
3553.10		Pd I	9
3553.161		Co I	137
3553.271		V I	53
3553.483		Ni I	16
3553.51		Mg II	11
3553.716		Gd II	89
3553.741		Fe I	810
3553.968		Cr I	157
3554.09		Zr II	83
3554.122		Fe I	23
3554.39		Ne II	18
3554.394		He I	34
3554.43		Lu II	7
3554.44	P	Fe I	395
3554.50		Fe I	325
3554.50	P	Fe II	176
3554.524		He I	34
3554.65	P	Fe I	154
3554.802		Gd II	52
3554.922		Fe I	326
3554.993		Ce II	117
3555.08	P	Fe II	113
3555.142		V I	53
3555.18		W II	11
3555.93		Co II	1
3556.083		Y II	46
3556.120		Co I	117
3556.130		Cr II	7
3556.184		Ti I	
3556.49		P II	21
3556.54	P	Zr II	19
3556.61		Zr II	9
3556.68		Fe I	325
3556.800		V II	5
3556.877		Fe I	327
3556.91		A II	29
3556.92		O III	24
3557.053		Gd II	22
3557.26		La II	29
3557.548		Fe II	176
3557.796		Tm II	10
3557.84		Ne II	6
3557.85	P	Cr II	76
3558.08	P	Fe I	572
3558.189		Gd II	69
3558.21	P	Fe I	239
3558.22	P	Cr II	89
3558.468		Gd II	51
3558.518		Fe I	24
3558.538		Sc II	3
3558.60		Cr I	
3558.772		Co I	20
3559.101		Sm II	
3559.21		Cr I	
3559.328		Ce II	243
3559.45	P	Fe I	321
3559.506		Fe I	498
3559.53		A II	70
3559.597		Co I	97
3559.781		Cr I	89
3559.93		P II	21
3559.930		Ni I	118
3560.07	P	Fe I	321
3560.306		Co I	64
3560.42		O IV	12
3560.594		V II	4
3560.68		Cl III	10
3560.705		Fe I	675
3560.798		Ce II	51
3560.855		Os I	6
3560.891		Co I	21

I A	Type	Element	Multiplet No.
3561.04		A II	106
3561.11		Zr II	82
3561.23		Ne II	31
3561.575		Ti II	15
3561.65		Hf II	1
3561.751		Ni I	2
3561.910		Ti II	42
3562.091		Ce II	36
3562.097		Co I	115
3562.19		A II	106
3562.29		Cr I	308
3562.48		Cr I	281
3562.48		P II	22
3562.60	P	Fe I	237
3562.912		Co I	64
3562.950		He I	33
3563.36		O IV	12
3563.61	P	Fe I	325
3563.71		V II	4
3563.92		Cr II	134
3564.046		Gd II	52
3564.11		Fe I	48
3564.115		Co I	159
3564.30		Cr I	281
3564.34		A II	43
3564.51	P	Fe I	183
3564.54	P	Fe II	113
3564.56	P	Fe I	183
3564.67	P	Ni I	73
3564.947		Co I	19
3564.953		Cr I	308
3565.02		A II	57
3565.15		Cr I	50
3565.31		Cr II	107
3565.326		Ti II	76
3565.381		Fe I	24
3565.41		Zr II	102
3565.55		Cr I	50,281
3565.583		Fe I	321,328
3565.83	P	Fe I	571
3565.84		Ne II	34
3566.00		Ti II	42
3566.052		Fe II	155
3566.10		Cr I	284
3566.10		Zr I	15
3566.148		Fe II	132
3566.177		V I	45
3566.177		V II	4
3566.31	P	Fe I	127
3566.37		Cr II	76
3566.372		Ni I	36
3566.43		P II	22
3566.472		Tm II	6
3566.59		Fe I	181
3566.836		Sm II	
3567.045		Fe I	325
3567.116		Gd II	89
3567.171		S II	56
3567.36		Fe I	183
3567.654		Gd II	51
3567.701		Sc II	3
3567.84		Lu I	3
3568.04		Cl II	78
3568.14		Zr II	46
3568.271		Sm II	47
3568.36		Cr I	284
3568.423		Fe I	321
3568.426		Co I	61
3568.53		Ne II	9
3568.828		Fe I	673
3568.940		V I	122
3568.97	P	Fe II	113
3568.977		Fe I	294
3569.03		Hf II	7
3569.083		V I	53
3569.14		Cr I	281
3569.370		Co I	35
3569.493		Mn I	18
3569.566		Gd II	51
3569.804		Mn I	18
3569.94		A II	57
3569.99		Fe I	135
3570.047		Mn I	18
3570.10		La II	142
3570.100		Fe I	24
3570.243		Fe I	326
3570.34		P II	18
3570.57	P	Cr II	89
3570.60	P	Fe I	154
3570.662		W I	3,5

I A	Type	Element	Multiplet No.
3570.77		A II	69
3571.037		V I	122
3571.16		Pd I	1
3571.228		Fe I	46
3571.26		Ne II	31
3571.37		Cr II	107
3571.64	P	Cr II	89
3571.653		V I	122
3571.869		Ni I	5
3571.933		Gd II	4
3571.97	P	Cr I	157
3571.995		Fe I	321
3572.32	P	Fe I	182
3572.46		Fe III	105
3572.47		Zr II	1
3572.48		W II	3
3572.523		Sc II	3
3572.60		Fe I	325
3572.734		Pb I	3
3572.748		Cr I	75
3573.09		Zr II	9
3573.27	P	Ni I	123
3573.403		Fe I	673
3573.516		V I	122
3573.557		V II	78
3573.643		Cr I	75
3573.737		Ti II	15
3573.842		Fe I	181
3573.896		Fe I	611
3574.039		Cr I	74,308
3574.23		Ne II	9
3574.245		Ti I	247
3574.340		V II	78
3574.37	P	Fe I	181
3574.38		Cr I	
3574.64		Ne II	9
3574.805		Cr I	75
3574.935		Cr I	74
3574.967		Co I	21
3575.11		Fe I	321
3575.249		Fe I	322
3575.361		Co I	4
3575.374		Fe I	496
3575.69	P	Cr II	107
3575.79		Zr I	12
3575.850		Cb I	4
3575.952		Ni I	120
3575.976		Fe I	321,328
3576.00		Cl II	78
3576.23	P	Cr II	171
3576.340		Sc II	3
3576.38		Ti II	76
3576.44		Ti IV	
3576.62		A II	56
3576.760		Fe I	613a
3576.762		Ni II	4
3576.772		Gd II	51
3576.88		Zr II	9
3577.220		V II	78
3577.240		Ni I	3
3577.260		Co I	41
3577.458		Ce II	51
3577.644		V II	69
3577.857		V II	78
3577.880		Mn I	8
3578.03		Co II	1
3578.076		Co I	117
3578.22		Zr II	83
3578.380		Fe I	321
3578.596		Gd II	21
3578.636		V II	78
3578.67	P	Fe I	127
3578.687		Cr I	4
3578.687		Ti II	117
3578.89		La II	155
3578.903		Co I	41
3579.029		Co I	41
3579.549		Gd II	89
3579.83	P	Fe I	573
3580.10		La II	155
3580.277		Cb I	4
3580.618		Gd II	89
3580.71	P	Sc II	40
3580.927		Sc II	3
3580.941		Sm II	
3581.195		Fe I	23
3581.62		A II	56
3581.645		Fe I	295
3581.68		La II	136
3581.80		C II	23

I A	Type	Element	Multiplet No.
3581.91		Gd II	69
3581.916		Fe I	497
3582.08		Zr II	101
3582.201		Fe I	612
3582.34	P	Fe I	568
3582.35		A II	56
3582.56		Fe I	181
3582.69		Fe I	328
3583.098		Rh I	3
3583.337		Fe I	574
3583.394		Sm II	20
3583.54	P	Fe II	101
3583.676		Mn I	25
3583.704		V I	45
3584.01	P	Cr II	107
3584.259		Sm II	12
3584.366		Cr I	
3584.53		Y II	9
3584.663		Fe I	294
3584.790		Fe I	322
3584.801		Co I	6
3584.960		Fe I	395,611
3584.962		Gd II	7
3584.98		C II	23
3585.154		Co I	21
3585.193		Fe I	438
3585.31		Cr II	13
3585.320		Fe I	23
3585.54		Cr II	13
3585.708		Fe I	23
3585.808		Co I	100
3585.83		C II	23
3585.852		Ti I	
3585.91		Mo II	1
3586.082		Co I	87
3586.10	P	Fe I	497
3586.114		Fe I	611
3586.12		Fe III	36
3586.23		Cr I	157
3586.28		Zr I	12
3586.543		Mn I	8
3586.557		Al II	7
3586.708	Forb	Al II	7
3586.75	P	Fe I	325
3586.811	Forb	Al II	7
3586.83	P	Sc II	40
3586.912		Al II	7
3586.936		Al II	7
3586.985		Fe I	23
3587.068		Al II	7
3587.130		Ti II	15
3587.16	P Forb	He I	32
3587.165		Al II	7
3587.186		Co I	35
3587.186		Gd II	1
3587.195	Forb	Al II	7
3587.252		He I	31
3587.253		Fe I	325
3587.309		Al II	7
3587.342		Al II	7
3587.396		He I	31
3587.424		Fe I	134
3587.450		Al II	7
3587.504		Nd II	
3587.53		Fe III	36
3587.68		C II	23
3587.69	P	Fe I	322
3587.75		Y I	
3587.752		Fe I	
3587.78		Cl II	78
3587.931		Ni I	16
3587.95	P	Fe II	10
3587.98		Zr II	10
3588.13		V II	78
3588.23	P	Fe I	47
3588.30		Cr II	107
3588.32		Zr II	10
3588.44		A II	56
3588.52	P	Fe I	394
3588.615		Fe I	325
3588.80		Zr II	57
3588.918		Fe I	322
3588.92		C II	23
3589.107		Fe I	23
3589.215		Ru I	4
3589.456		Fe I	295
3589.635		Sc II	3
3589.67		C II	23
3589.745		V II	4
3589.77		Fe III	

I A	Type	Element	Multiplet No.
3589.973		Mn I	25
3590.08		Fe I	440
3590.29	P	Fe I	497
3590.46		Si III	7
3590.468		Gd II	22
3590.47		Ne II	32
3590.475		Sc II	3
3590.598		Ce II	232
3590.66		Fe I	953
3590.87		C II	23
3590.99		Fe I	573
3591.345		Fe I	321
3591.485		Fe I	568
3591.746		Co I	134
3591.912		Gd II	51
3592.012		V II	4
3592.486		Fe I	237
3592.595		Nd II	
3592.603		Sm II	39
3592.68		Fe I	569
3592.709		Gd II	69,89
3592.881		Fe I	77
3592.92		Y I	8
3593.02	P	Cr II	13
3593.022		Ru I	4
3593.093		Ti II	76
3593.15		Fe III	36
3593.323		V II	4
3593.33		Fe I	571
3593.445		Gd II	52
3593.488		Cr I	4
3593.5259		Ne I	7
3593.60		N II	26
3593.76		A II	117
3593.80	P	Fe I	182
3594.10	P	Fe I	154
3594.13	P	Sc II	40
3594.18		Ne II	34
3594.41		A II	23
3594.462		S II	16
3594.632		Fe I	322
3594.87	P	Co I	135
3594.870		Co I	4
3594.89	P	Sc II	40
3595.119		Mn I	8
3595.294		Fe I	322
3595.66		Fe I	322
3595.87		Fe I	181
3595.991		S II	4
3596.048		Ti II	15
3596.179		Ru I	4
3596.194		Rh I	1
3596.20		Fe I	181
3596.351		Mo II	1
3596.510		Co I	118
3596.55		Ti II	76
3597.05		Fe I	569
3597.147		Rh I	5
3597.24	P	Fe I	856
3597.39	P	Sc II	40
3597.42		Hf II	54
3597.50		Al II	52
3597.705		Ni I	18
3598.196		Ce II	116
3598.22		Fe III	105
3598.71		Fe I	674
3598.714		Ti I	59
3598.93		Fe I	568
3598.98		Fe I	322
3599.304		He I	30
3599.395		Cr I	89
3599.442		He I	30
3599.49		Fe III	36
3599.530		Ni I	121
3599.624		Fe I	609
3599.91		Zr II	123
3599.974		Ce II	219
3600.22		A II	115
3600.48	P	Fe I	498
3600.583		Ce II	236
3600.74		Y II	9
3600.803		Co I	63
3600.93		Fe III	36
3600.963		Gd II	69
3601.07		La II	44
3601.16		Ti I	172
3601.18		Zr I	13
3601.42	P	Fe I	127
3601.51		A II	4
3601.623		Al III	1

I A	Type	Element	Multiplet No.
3601.666		Cr I	74
3601.692		Sm II	20
3601.782		Mn I	25
3601.916		Al III	1
3601.93		Y II	9
3602.079		Co I	4
3602.10		Cl III	1
3602.10		Fe I	322
3602.281		Ni I	3
3602.46		Fe I	322
3602.534		Fe I	324,391
3602.574		Cr I	74
3602.60	P	Fe II	101
3602.61	P	Cr I	140
3602.70	P	Fe I	390
3602.77	P	Fe I	370
3603.20		Eu II	16
3603.205		Fe I	295
3603.46		A II	57
3603.572		Fe I	181
3603.61		Cr II	13
3603.72		Cl II	78
3603.745		Cr I	74
3603.80		Cr II	13
3603.828		Fe I	496
3603.845		Ti I	20
3603.86		Cr II	13
3603.88		Fe III	36
3603.91		A II	43,68
3604.21	P	Fe II	175
3604.284		Ti I	21
3604.285		Sm II	47
3604.375		V II	130
3604.383		Fe I	323
3604.469		Co I	136
3604.51		Cl II	78
3604.54		Cr I	49,89
3604.95	P	Cr I	74
3604.96	P	Fe I	77
3605.015		Co I	97
3605.05	P	Cr I	49
3605.333		Cr I	4
3605.370		Co I	20
3605.41	P	Cr I	49
3605.450		Fe I	294
3605.46		Y II	46
3605.50	P	Fe I	322
3605.50	P	Sc II	40
3605.52	P	Cr I	252
3605.665		Gd II	4
3605.691		Mn I	25
3605.89		A II	30
3606.062		Ti I	303
3606.18	P	Fe II	175
3606.38	P	Fe I	233
3606.5224		A I	5
3606.53	P	Fe I	133
3606.679		Fe I	294
3606.786		Ti I	20
3606.852		Ni I	120,173
3607.04		Co I	67
3607.05	P	Fe II	101
3607.25	P	Cr I	140
3607.30		V II	77
3607.39		Zr II	83
3607.537		Mn I	8
3607.625		Ce II	178
3607.92	P	Cr I	140
3608.146		Fe I	325,438
3608.307		Co I	20
3608.32		V II	242
3608.401		Cr I	252
3608.49	P	Fe II	171
3608.494		Mn I	8
3608.58	P	Cr I	140
3608.66		Cr II	133
3608.7	P	Ni II	4
3608.753		Gd II	69
3608.766		Tm II	3
3608.861		Fe I	23
3608.89	P	Ti II	76
3608.96		C III	10
3609.04		Cr I	49
3609.09		N II	26
3609.314		Ni I	16
3609.46	P	Fe I	322
3609.479		Cr I	49
3609.491		Sm II	30
3609.56		Pd I	2
3609.61		C III	10

I A	Type	Element	Multiplet No.
3609.687		Ce II	179
3609.752		Co I	147
3609.788		Nd II	
3610.052		Cr I	49
3610.07		Cl II	
3610.154		Ti I	58
3610.159		Fe I	321
3610.25		La II	
3610.299		Mn I	8
3610.33	P	Fe II	112
3610.38	P	Fe II	175
3610.462		Ni I	18
3610.703		Fe I	323
3610.76		Gd II	89
3610.794		Th II	3
3610.85	P	Cr II	171
3611.06		Y II	9
3611.418		Ni I	119
3611.54	P	Ni I	2
3611.57		Eu II	15
3611.58		V II	
3611.701		Co I	115
3611.72		Fe III	36
3611.84		A II	30
3611.90		Zr II	113
3612.068		Fe I	325
3612.34		La II	125
3612.34		Zr II	146
3612.35		Ne II	26
3612.352		Al III	1
3612.470		Rh I	1
3612.51	P	Fe I	613a
3612.609		Cr I	252
3612.741		Nf I	6
3612.85		Cl III	1
3612.940		Fe I	46,77
3613.03		S II	4
3613.08	P	Fe I	322
3613.08		Zr II	1
3613.15		Fe I	324
3613.21		Cr II	13
3613.26		Cr II	13
3613.30	P	Ti II	76
3613.392		Gd II	69
3613.43		Zr II	8,45
3613.45	P	Fe I	672
3613.490		Gd II	87
3613.641		He I	6
3613.669		Cr I	89
3613.70		Zr I	33
3613.701		Ce II	110
3613.80		Mg II	2
3613.836		Sc II	2
3613.95	P	Fe I	612
3614.10		Co I	64
3614.21		Gd II	51
3614.26		Cr II	132
3614.34		Co I	134
3614.550		Fe I	
3614.673		Nd II	38
3614.77	P	Fe I	395
3614.79		Zr II	9
3614.873		Fe II	112
3615.01	P	Fe I	154
3615.09		Cl II	70
3615.19		Fe I	569
3615.387		Co I	66
3615.45	P	Cr II	147
3615.64		Mg II	2
3615.645		Cr I	3
3615.66		Fe I	46
3615.817		Nd II	69
3615.88		N II	26
3616.15	P	Fe I	569
3616.152		Eu II	28
3616.29	P	Cr II	147
3616.326		Fe I	132
3616.572		Fe I	
3616.916		S II	56
3617.09		Fe I	535
3617.164		Gd II	89
3617.317		Fe I	
3617.32		Cr II	147
3617.522		W I	8
3617.53	P	Fe I	323
3617.788		Fe I	496
3617.97	P	Fe I	181
3618.010		Co I	36
3618.30	P	Fe I	324
3618.392		Fe I	295,571

I A	Type	Element	Multiplet No.
3618.49		K II	1
3618.62	P	Fe I	569
3618.769		Fe I	23
3618.88		Cl II	77
3618.91	P	Fe I	130
3618.924		V II	158
3618.96	P	Fe I	77
3619.284		Mn I	8
3619.392		Ni I	35
3619.460		Cr I	48
3619.514		Cb II	4
3619.66	P	Fe I	130
3619.76		Fe I	180
3620.00	P	Fe I	324
3620.23		Fe I	324
3620.27		Fe III	25
3620.422		Co I	116
3620.496		V II	181
3620.82		A II	67
3620.87	P	Fe I	611
3620.88	P	Fe I	323
3620.95		Y I	8
3621.06		A II	4
3621.19	P	Fe I	574
3621.203		V II	76
3621.22		Co II	1
3621.229		Sm II	12
3621.273		Fe II	144
3621.463		Fe I	294
3621.51		Cr II	98
3621.718		Fe I	808
3622	P	O VI	3
3622.00	P	Fe I	233
3622.001		Fe I	295
3622.145		Ce II	71
3622.15		A II	42
3622.289		V. II	144
3622.45		Cr II	171
3622.504		Sm II	6
3622.54		Eu II	18
3622.69		Cl III	1
3622.81	P	Fe II	175
3622.850		Mo II	1
3623.03		V II	77
3623.187		Fe I	180
3623.316		Sm II	12
3623.440		Fe I	233,436
3623.51	P	Fe I	393
3623.772		Fe I	323
3623.792		Mn I	8
3623.837		Ce II	235
3623.837		Ce II	
3623.87		Zr I	12
3623.98		Lu II	6
3624.00		Hf II	18
3624.06	P	Fe I	570
3624.111		Ca I	9
3624.25		Fe III	93
3624.30		Fe I	133
3624.337		Co I	41
3624.688		Fe II	
3624.72	P	Ni I	121
3624.733		Ni I	2
3624.826		Ti II	52
3624.890		Fe II	144
3624.955		Co I	21
3625.140		Fe I	323
3625.26		Gd II	69
3625.30	P	Cr II	98
3625.608		V II	76
3625.92	P	Cr II	147
3626.020		Co I	41
3626.085		Ti I	20
3626.32		Gd II	69
3626.53		S III	
3627.014		Sm II	30
3627.05		Fe I	808
3627.168		Fe II	193
3627.35	P	Fe I	395
3627.63		Mg I	45
3627.71		Ti II	62
3627.713		V II	76
3627.806		Co I	19
3627.971		Sm II	12
3628.06		Ne II	41
3628.094		Fe I	77
3628.247		Ce II	113
3628.71		Y II	9
3628.82	P	Fe I	438
3628.83		La II	19

I A	Type	Element	Multiplet No.
3629.10	P	Sc II	18
3629.12		Zr II	113
3629.51		Gd II	69
3629.741		Mn I	8
3629.906		Ni I	182
3629.99	P	Fe II	111
3630.03		Zr II	10
3630.26	P	Ni I	180
3630.353		Fe I	323
3630.67	P	Fe I	126
3630.740		Sc II	2
3630.748		Ca I	9
3630.974		Ca I	9
3631.103		Fe I	322
3631.126		Sm II	
3631.194		Ce II	88
3631.266		Na II	2
3631.390		Co I	4
3631.41		P II	22
3631.464		Fe I	23
3631.48	P	Cr II	170
3631.482		V II	76
3631.49		Cr II	12
3631.72		Cr II	12
3631.948		Co I	133
3631.959		W I	3
3631.999		Ti I	
3632.022		S III	1
3632.042		Fe I	496
3632.106		Ce II	114
3632.126		V II	76
3632.292		Fe II	112
3632.46		Cr I	49
3632.558		Fe I	437
3632.75		Ne II	33
3632.839		Co I	147
3632.839		Cr I	49
3632.979		Fe I	135
3633.07	P	Fe I	390
3633.13		Y II	2
3633.16	P	Cr II	147
3633.340		Co I	116
3633.458		Ti I	
3633.49		Zr II	102
3633.64	P	Fe I	395
3633.837		Fe I	440
3633.99	P	Ti II	116
3634.04		Cr II	147
3634.10	P Forb	He I	29
3634.13		V II	180
3634.235		He I	28
3634.290		Sm II	19
3634.326		Fe I	389
3634.373		He I	28
3634.52	P	Fe I	323
3634.698		Fe I	
3634.71		Pd I	1
3634.713		Co I	146
3634.757		Gd II	69
3634.83		A II	29
3634.928		Sm II	6
3634.941		Ni I	33
3635.08	P	Fe I	919
3635.13		A II	4
3635.144		Mo II	5
3635.19		Fe I	490
3635.202		Ti I	20
3635.28	P	Fe I	324
3635.281		Cr I	3
3635.334		Y II	46
3635.36	P	Ti II	62
3635.43	P	Cr II	98
3635.462		Ti I	19
3635.64	P	Ti II	116
3635.67		A II	68
3635.82	P	Fe I	321
3636.186		Fe I	77,568
3636.21		Cr I	47
3636.23		Fe I	774
3636.46		Zr II	9
3636.49	P	Fe I	568
3636.50	P	Fe I	47
3636.590		Cr I	47
3636.61	P	Fe II	111
3636.650		Fe I	493
3636.713		Co I	64
3636.90	P	Fe II	112
3636.995		Fe I	233
3637.05		A II	
3637.05	P	Fe I	438

I A	Type	Element	Multiplet No.
3637.15		La II	55
3637.251		Fe I	180
3637.319		Co I	117
3637.73		Fe I	229
3637.83		Sb I	1
3637.862		Fe I	385
3637.89		A II	
3637.966		Ti I	18
3638.15		S III	
3638.16	P	Fe I	324
3638.296		Fe I	294
3638.49	P	Ti I	118
3638.70		O III	35
3638.767		Sm II	
3638.80		Pt I	6
3639.024		V I	83
3639.14	P	Mn I	7
3639.19		Cl II	77
3639.443		Co I	64
3639.568		Pb I	1
3639.76	P	Sc II	18
3639.802		Cr I	47
3639.85		A II	116
3640.18		Gd II	23
3640.388		Fe I	295
3640.39		Cr I	47
3640.891		F II	11
3641.01		Cr I	47
3641.096		V I	115
3641.22	P	Fe II	111
3641.330		Ti II	52
3641.39		Gd II	86
3641.42		W II	1
3641.45	P	Fe I	323
3641.470		Cr I	47
3641.641		Ni I	6
3641.66		La II	136
3641.784		Co I	99
3641.830		Cr I	47
3641.985		F II	11
3642.387		Ni I	75
3642.675		Ti I	19
3642.785		Sc II	2
3642.798		F II	11
3643.181		Co I	99
3643.22		Cr II	1
3643.4		Y II	55
3643.47		Mo II	1
3643.627		Fe I	385
3643.716		Fe I	233
3643.80	P	Fe I	670
3643.82	P	Fe I	46
3643.864		V I	83
3643.89		Ne II	5
3643.941		Ni I	174
3644.12	P	Cr II	98
3644.19	P	Fe II	131
3644.35		Hf II	6
3644.410		Ca I	9
3644.47		He II	5
3644.58	P	Fe I	235
3644.699		Ti I	
3644.70		Cr II	1
3644.765		Ca I	9
3644.798		Fe I	570
3644.86		Ne II	41
3644.87	P	Ti II	116
3644.990		Ca I	9
3645.090		Fe I	323,495
3645.190		Co I	61
3645.20		O III	35
3645.290		Sm II	19
3645.311		Sc II	2
3645.387		Sm II	35
3645.43		La II	14
3645.440		Co I	97
3645.494		Fe I	323,391,441
3645.59		Cr I	48
3645.596		V I	137
3645.62		Gd II	17
3645.78	P	Fe II	112
3645.822		Fe I	496
3645.905		V II	76
3645.981		H	7
3646.10	P	Fe I	324
3646.161		Cr I	48
3646.19		Gd II	2
3646.198		Ti I	18
3646.75		Eu II	13
3646.84		O III	35

I A	Type	Element	Multiplet No.
3646.848		V II	180
3646.965		Ce II	66
3647.081		Co I	118
3647.40		Cr II	1
3647.427		Fe I	46
3647.43	P	Fe I	497
3647.56	P	Fe I	574
3647.658		Co I	4
3647.71		Ni I	
3647.77		Lu I	
3647.84	P	Fe I	569
3647.844		Fe I	23
3648.07		Cl II	77
3648.22	P	Fe I	978
3648.35		Hf II	39
3648.534		Cr I	47
3648.80	P	Ti II	74
3648.86		Ti II	83
3648.966		V I	115
3648.997		Cr I	47
3649.01	P	Ti II	14
3649.184	Forb	Al II	12
3649.20		O III	35
3649.232	Forb	Al II	12
3649.304		Fe I	5
3649.329		Co I	146
3649.44		Gd II	69
3649.508		Fe I	291
3649.527		Sm II	47
3649.70	P	Fe I	391
3650.031		Fe I	394
3650.13		Cl II	7
3650.144		Hg I	3
3650.188		Sm II	25
3650.19		La II	12
3650.19		N I	
3650.280		Fe I	180
3650.37		Cr II	156
3650.45		Y II	75
3650.70		O III	35
3650.73		Zr II	146
3650.90		A II	43
3650.95		Gd II	69
3650.998		Sm II	51
3651.03	P	Fe I	571
3651.065	Forb	Al II	12
3651.096		Al II	12
3651.10		Fe I	322,674
3651.182		Cb II	4
3651.254		Co I	85
3651.469		Fe I	295
3651.50		Zr II	122
3651.67	P	Ni I	153
3651.68		Cr II	1
3651.798		Sc II	2
3651.90	P	Ti I	118
3651.971		He I	27
3652.119		He I	27
3652.26	P	Fe I	494
3652.541		Co I	4
3652.65		Fe III	
3652.748		Fe II	
3652.81	P	Ti II	116
3653.00		O III	35
3653.108		Ce II	38
3653.35	P	Fe I	229,324
3653.497		Ti I	19
3653.614		Tm II	10
3653.62	P	Sc II	18
3653.670		Ce II	50
3653.763		Fe I	180
3653.85	P	Cr II	156
3653.912		Cr I	47
3654.441		Co I	63
3654.51		S II	4
3654.592		Ti I	18
3654.62		Gd II	4
3654.66		Fe I	77
3654.995		Al II	12
3655.29		A II	82
3655.35	P	Fe I	131
3655.465		Fe I	369
3655.56		Zr II	71
3655.851		Ce II	51
3655.92	P	Cr I	46
3656.05		A II	67
3656.135		H	7
3656.152		Gd II	1
3656.221		Sm II	
3656.227		Fe I	

I A	Type	Element	Multiplet No.
3656.261		Cr I	46
3656.319		Al II	51
3656.35	P	Fe I	323
3656.50	P	Fe II	111
3656.61		S III	6
3656.666		H	7
3656.706		V I	115
3656.73	P	Ti I	118
3656.77	P	Fe II	131
3656.95		Cl III	1
3656.962		Co I	21
3657.143		Fe I	130
3657.269		H	7
3657.574		Ru II	1
3657.59		W II	2
3657.698		Ni I	183
3657.89		Fe I	395
3657.926		H	7
3657.94		Cr II	170
3657.987		Rh I	1
3658.02	P	Fe I	438
3658.097		Ti I	19
3658.19		Cr II	98,146
3658.266		V II	116
3658.3		Al III	20
3658.38		Cl II	7
3658.55		Fe I	231
3658.641		H	7
3659.02		Hf II	44
3659.227		Ce II	54
3659.423		H	6
3659.516		Fe I	180
3659.602		Cb II	
3659.765		Ti II	75
3659.84		Cl II	7
3659.93		Ne II	33
3660.279		H	6
3660.33		Fe I	323
3660.404		Mn I	
3660.41	P	Fe I	229
3660.44		A II	116
3660.631		Ti I	18
3660.641		Ce II	42
3660.85		Fe III	93
3660.92		Zr II	32
3661.05		Hf II	26
3661.17	P	Fe II	111
3661.20		Zr I	12
3661.221		H	6
3661.25	P	Fe I	952
3661.33		Zr II	102
3661.353		Ru I	2
3661.36		Fe I	179
3661.365		Sm II	6
3661.383		V II	191
3661.44		Cr II	156
3661.73		Hf II	62
3661.951		Ni I	16
3662.005		S III	6
3662.08		La II	12
3662.14		Zr II	101
3662.158		Co I	115
3662.237		Ti II	75
3662.258		H	6
3662.26		Gd II	4
3662.39		Cr I	46
3662.62	P	Cr II	1
3662.693		Sm II	
3662.73	P	Fe I	490
3662.840		Cr I	46
3662.90	P	Fe I	436
3662.905		Sm II	39
3663.206		Cr I	46
3663.25		Fe I	439
3663.274		Hg I	2
3663.406		H	6
3663.458		Fe I	229,231
3663.47		S II	16
3663.594		V I	114
3663.64		Zr I	12
3663.95		Fe I	435
3663.98		Fe III	24
3664.09		Ne II	1
3664.095		Ni I	4
3664.20		P II	18
3664.254		Sc II	10
3664.537		Fe I	391
3664.60		Gd II	
3664.62		Y II	9
3664.679		H	6

I A	Type	Element	Multiplet No.
3664.69		Fe I	390
3664.86	P	Ti II	116
3664.95		Cr II	156
3664.98		Fe III	24
3665.142		V I	115
3665.180		Nd II	
3665.22		La II	
3665.35		Hf II	18
3665.43		Cr I	48
3665.48	P	Cr II	1
3665.812		Tm II	10
3665.924		Ni I	
3665.980		Cr I	48
3666.02	P	Cr II	145
3666.097		H	5
3666.11	P	Ti II	74
3666.19		Cr I	46
3666.218		Rh I	3
3666.24		Fe I	179,389
3666.29	P	Fe I	672
3666.537		Sc II	2
3666.592		Ti II	116
3666.642		Cr I	46
3666.85	P	Fe I	393
3666.944		Fe I	46
3667.06		Zr II	8
3667.252		Fe I	570
3667.40		Zr II	32
3667.684		H	5
3667.741		V I	114
3667.932		Sm II	30
3667.981		Ce II	40
3667.999		Fe I	438,569
3668.029		Cr I	46
3668.03		Cl II	7
3668.088		Tm II	2
3668.214		Fe I	568
3668.216		Ni I	182
3668.46		Zr II	9
3668.489		Y II	46
3668.58	P	Fe I	231
3668.719		Ce II	38
3668.830		Pr II	
3668.893		Fe I	229
3668.965		Ti I	18
3669.049		S II	16
3669.151		Fe I	437
3669.241		Ni I	2
3669.399		Mn I	7
3669.410		V II	116
3669.466		H	5
3669.523		Fe I	291
3669.62		A II	42
3669.68	P	Fe I	436
3669.69	P	Cr II	1
3669.838		Mn I	7
3670.035		Fe I	369
3670.041		Co I	64
3670.071		Fe I	435
3670.16	P	Cr II	6
3670.23	P	Fe I	47
3670.28		Cl III	1
3670.427		Ni I	4
3670.517		Mn I	7
3670.668		Mo II	1
3670.677		Sm II	
3670.810		Fe I	133
3670.840		Sm II	11
3671.01		A II	115
3671.12	P	Cr II	6
3671.20		Gd II	2
3671.205		V I	70
3671.28		Zr II	45
3671.478		H	5
3671.51		Fe I	570
3671.672		Ti I	19
3671.94		Cr I	217
3672.14		S II	4
3672.166		Ce II	49
3672.363		Nd II	
3672.403		V I	115
3672.65		Zr II	1
3672.69		Fe I	180
3672.789		Ce II	233
3673.19		Eu II	28
3673.26		A II	117
3673.35	P	Fe II	174
3673.404		V I	114
3673.448		Ca I	28
3673.542		Nd II	

I A	Type	Element	Multiplet No.
3673.59		Cr I	217
3673.68	P	Fe I	978
3673.761		H	5
3673.77	P	Fe II	131
3673.83		Cl II	7
3674.06	P	Ni I	15
3674.15	P	Ni I	32
3674.634		Eu II	11
3674.691		V II	93
3674.74		Zr II	9
3674.766		Fe I	369
3674.92	P	Ti I	177
3675.00	P	Cr II	1
3675.265		Sc II	10
3675.307		Ca I	28
3675.44	P	Fe I	229
3675.497		V I	114
3675.64		Y II	84
3675.700		V I	29
3675.76	P	Fe I	996
3676.27		P II	19
3676.314		Fe I	228
3676.33		Cr I	89
3676.365		H	4
3676.50	P	Cr II	1
3676.552		Co I	145
3676.684		V I	115
3676.879		Fe I	389
3676.959		Mn I	
3677.309		Fe I	773
3677.477		Fe I	125
3677.630		Fe I	291
3677.69		Cr II	12
3677.793		Sm II	
3677.835		Co I	116
3677.86		Cr II	12
3677.93		Cr II	12
3677.980		Co I	20
3678.13		S II	
3678.240		Ca I	28
3678.259		Eu II	29
3678.27		A II	42
3678.342		Sc II	45
3678.46	P	Mn I	7
3678.862		Tm II	12
3678.863		Fe I	131
3678.91		Zr II	101
3678.98		Fe I	124
3679.070		Cr I	45
3679.14	P	Ti I	177
3679.33		Fe I	228
3679.34	P	Cr II	118
3679.355		H	4
3679.424		Ce II	257
3679.500		Eu II	
3679.53		Fe I	393,490
3679.64		Zr II	122
3679.673		Ti II	75
3679.80		Ne II	41
3679.819		Cr I	48
3679.915		Fe I	5
3680.06		A II	115
3680.113		V I	114
3680.19		Cr I	48
3680.675		Fe I	568
3680.801		Fe I	
3680.98	P	Fe II	111
3681.272		Ti I	177
3681.54		K II	1
3681.64		Fe I	390
3681.691		Cr I	89
3681.774		Fe I	
3681.87		Fe I	951
3682.05		Cl III	1
3682.101		W I	4
3682.15	P	Fe I	386
3682.17	P	Fe I	385
3682.226		Fe I	772
3682.25		Hf I	1
3682.56		A II	29
3682.66	P	Fe II	131
3682.67		Zr II	44
3682.810		H	4
3683.047		Co I	99
3683.054		Fe I	5
3683.126		V I	29
3683.267		Eu II	11
3683.39		Cl III	12
3683.469		Pb I	1
3683.616		Fe I	130,671
3683.67		Cr I	216
3683.71		Ca II	18
3683.77	P	Fe I	996
3684.1		Li II	2
3684.108		Fe I	292
3684.25		Cr II	145
3684.332		V I	114
3684.479		Co I	99
3684.903		Y II	62
3684.960		Co I	116
3685.049		Mn II	8
3685.192		Ti II	14
3685.212		Mn I	7
3685.47	P	Ti I	177
3685.548		Cr I	44
3685.66	P	Fe I	231
3685.804		Nd II	
3685.964		Ti I	117
3685.998		Fe I	385
3686.18		Cr I	44
3686.20		Mn II	8
3686.260		Fe I	131
3686.262		V I	70
3686.477		Co I	134
3686.555		Cu II	2
3686.67		Cr II	118
3686.71		Ti I	222
3686.803		Cr I	44
3686.833		H	4
3687.039		Pr II	
3687.100		Fe I	75
3687.252		Cr I	44
3687.354		Ti I	19
3687.458		Fe I	21
3687.473		V I	114
3687.545		Cr I	45
3687.656		Fe I	291
3687.74		Gd II	20
3687.78		Eu II	
3687.802		Ce II	143
3688.01	P	Cr II	1
3688.069		V I	29
3688.11		Cr I	45
3688.27	P	Ti I	177
3688.307		Mo II	5
3688.415		Ni I	5
3688.418		Sm II	11
3688.42		Eu II	2
3688.44		Cl II	56
3688.457		Cr I	48
3688.476		Fe I	669
3688.71		Fe III	93
3688.877		Fe I	179
3689	P	N IV	12
3689.02	P	Fe I	178
3689.2		Y II	75
3689.302		Cr I	48
3689.305		Ni I	173
3689.37	P	Fe I	391
3689.457		Fe I	369,386
3689.63		Cr I	216
3689.671		Ti I	222
3689.897		Fe I	533
3689.916		Ti I	18
3690.032		Ru II	1
3690.095		Fe I	231
3690.281		V I	29
3690.35		Pd I	7
3690.450		Fe I	497,570
3690.60		Fe III	85
3690.70		V II	190
3690.715		Co I	86
3690.730		Fe I	807
3690.98	P	Zr II	82
3691.18	P	Fe I	229
3691.53	P	Fe I	707
3691.557		H	4
3692	P	O V	8
3692.17		A II	68
3692.221		Sm II	29
3692.225		V I	29
3692.33		A II	4
3692.357		Rh I	1
3692.44		O I	6
3692.60		Zr II	56
3692.645		Mo II	5
3692.812		Mn I	7
3693.008		Fe I	439
3693.09		Cr I	216
3693.106		Co I	97
3693.364		Co I	64
3693.476		Co I	95
3693.56		Cr I	45
3693.667		Mn I	
3693.78	P	Fe I	46
3693.79	P	Fe I	490
3693.932		Ni I	15
3693.989		Sm II	2
3694.005		Fe I	394
3694.10	P	Ti I	177
3694.11		Ca II	18
3694.115		Mn I	24
3694.12		Cr I	45
3694.19		Yb II	1
3694.22		Ne II	1
3694.27		La II	124
3694.31		Ca II	18
3694.445		Ti I	117
3694.622		V I	114
3694.911		Ce II	63
3694.98		Cr II	169
3695.054		Fe I	229,534a
3695.158		V II	116,179
3695.335		V I	114
3695.37		O III	21
3695.507		Fe I	225,707
3695.86		Cr I	217
3695.865		V I	29
3696	P	N IV	12
3696.03		Fe I	128
3696.29	P	Ni I	74
3696.39		Ti II	73
3696.568		Mn I	24
3696.6		Y II	74
3696.65	P	Ni I	74
3696.78		Cr II	131
3696.81	P	Fe I	434
3696.885		Ti I	177
3696.913		Ni I	172
3697.09		Ne II	41
3697.154		H	3
3697.426		Fe I	389
3697.45		Fe III	35
3697.49		Zr II	7
3697.510		Fe I	670
3697.72		V II	204
3697.73		Gd II	4
3697.850		Cb I	3
3697.88		S III	
3698.00		Cr II	118
3698.03	P	Fe I	75
3698.17		Zr II	71
3698.183		Ti I	222
3698.39		Hf II	42
3698.611		Fe I	491
3698.650		Ce II	51
3698.70		O III	21
3699.017		Co I	145
3699.147		Fe I	490
3699.37		S III	
3699.41	P	Fe I	996
3699.476		V I	70
3699.55	P	Fe I	436
3699.72		Hf II	18
3699.73		Gd II	20
3699.90	P	Fe II	131
3699.920		Ce II	223
3699.952		Pr II	11
3700.055		Ti I	
3700.126		V II	102
3700.14		Fe III	84
3700.256		Tm II	6
3700.337		V II	116
3700.42	P	Cr II	1
3700.61	P	Fe I	569
3700.909		Rh I	2
3700.922		Sm II	
3700.96		V II	102
3701	P	O V	8
3701.086		Fe I	385
3701.15		Hf II	61
3701.364		Tm II	2
3701.63	P	Ni I	138
3701.730		Mn I	7
3701.81		La II	136
3701.81		Ne II	40
3701.90		Cr II	168
3702	P	O V	16
3702.033		Fe I	369
3702.086		Al III	4

I A	Type	Element	Multiplet No.
3702.237		Co I	145
3702.291		Ti I	83
3702.500		Fe I	46,75
3702.553		Mo II	5
3702.75		O III	14
3702.942		Ti I	132
3703	P	O V	8
3703.217		Al II	18
3703.323		Y II	62
3703.37		O III	21
3703.43	P	Fe I	704
3703.52		C III	12
3703.556		Fe I	291,292
3703.584		V I	29
3703.697		Fe I	389
3703.824		Fe I	369
3703.832		V II	15
3703.855		H	3
3704.010		Fe I	495
3704.060		Co I	35
3704.295		Ti I	117
3704.336		Fe I	609
3704.463		Fe I	290
3704.699		V I	29
3704.73		O III	21
3704.79	P Forb	He I	26
3704.80	P	Fe I	950
3704.848		Tm II	9
3705.003		He I	25
3705.035		V I	29
3705.12	P	Ni I	30
3705.140		He I	25
3705.26	P	Fe I	704
3705.40	P	Cr II	118
3705.40		Hf II	62
3705.45		Cl III	1
3705.53		Ti I	222
3705.567		Fe I	5
3705.70	P	Fe I	610
3705.71	P	Fe I	293
3705.81		La II	55
3705.83		V I	114
3706.026		Ca II	3
3706.035		V I	104
3706.06		P II	20
3706.219		Ti II	73
3706.752		Sm II	47
3706.91		Mn II	8
3706.94		A II	4
3706.979		Sm II	
3707.01		Co I	85
3707.048		Fe I	385,392
3707.13		Cr II	169
3707.167		Sm II	35
3707.24		O III	14
3707.34		Cl III	9
3707.465		Co I	96
3707.549		Ti I	177
3707.828		Fe I	5
3707.918		Fe I	76
3708.06		Mn II	8
3708.18	P	Fe I	228
3708.410		Sm II	5
3708.45	P	Fe I	436
3708.602		Fe I	178,225
3708.625		Ti I	268
3708.654		Sm II	19
3708.721		V I	104
3708.823		Co I	98
3709.03	P	Fe I	390
3709.13		Gd II	51
3709.246		Fe I	21
3709.25	P	Cr II	6
3709.27		Zr II	45
3709.286		Ce II	40
3709.335		V II	102
3709.371		S III	1
3709.52		O III	21
3709.535		Fe I	435
3709.64		Ne II	1
3709.665		Fe I	225
3709.88		Mn II	8
3709.90		A II	67
3709.933		Ce II	40
3709.963		Ti I	83
3710.01	P	Cr II	6
3710.186		Ti I	222
3710.22	P	Cr II	6
3710.30		Y II	7
3710.42		S III	1

I A	Type	Element	Multiplet No.
3710.46		P II	37
3710.47		Zr II	122
3710.60		Cr I	88
3710.869		Sm II	19
3710.870		Eu II	14
3711.074		Na II	3
3711.099		Pr II	18
3711.118		V II	102
3711.225		Fe I	228
3711.29		Cr II	
3711.30	P	Fe I	75
3711.32		Fe III	99
3711.411		Fe I	494
3711.543		Sm II	25
3711.646		Co I	63
3711.751		V II	116
3711.92	P	Fe I	178
3711.95		Zr II	8
3711.973		H	3
3711.974		Fe II	192
3712.109		Sm II	
3712.177		Co I	84
3712.39	P	Fe II	15
3712.48		O III	21
3712.50		Cr I	269
3712.533		V II	157
3712.70		Gd II	20
3712.75		O II	3
3712.764		Sm II	25
3712.97		Cr II	12
3713.018		Cb I	3
3713.03		A II	114
3713.04		Cr II	12
3713.09		Ne II	5
3713.103		Al III	4
3713.336		Ni I	74
3713.45		Eu II	12
3713.54		La II	26
3713.56		V I	98
3713.696		Ni I	74
3713.734		Ti I	116
3713.957		V I	11
3714	P	N IV	12
3714.03		O III	14
3714.13		Zr I	12
3714.3		Y II	61
3714.39		Cr I	269
3714.74		A II	3
3714.77		Zr II	18
3714.808		Nd II	35
3714.87		La II	55
3714.904		Eu II	11
3715.08		O III	14
3715.19		Cr II	20
3715.371		Ti I	
3715.45		Cr II	145
3715.476		V II	15
3715.499		Ni I	183
3715.53		La II	43
3715.795		Ti I	116
3715.86		P II	1
3715.911		Fe I	124
3716.36		Gd II	2
3716.365		Ce II	40
3716.442		Fe I	388,705
3716.531		Cr I	269
3716.60		K II	2
3716.71	P	Fe I	434
3716.91		Y II	76
3716.930		Ce II	242
3717	P	O V	8
3717.02		Zr II	82
3717.03		P IV	3
3717.06		Cb II	
3717.17		A II	67
3717.19	P	Fe I	704
3717.259		Ti I	116
3717.393		Ti I	17
3717.53		Mn II	8
3717.55		V I	114
3717.63		P III	10
3717.63		P IV	3
3717.69		Eu II	
3717.73	P	Fe I	997
3717.775		S III	6
3717.84	P	Fe I	706
3717.915		Tm I	
3717.94		Cl II	63
3718.159		V II	21
3718.190		Ce II	53

I A	Type	Element	Multiplet No.
3718.21		A II	131
3718.380		Ce II	37
3718.407		Fe I	292
3718.86		Zr II	9
3718.877		Sm II	38
3718.92		Pd I	3
3718.930		Mn I	
3719.27		Hf II	7
3719.45		Gd II	
3719.53		Gd II	17
3719.74		Mo II	5
3719.797		Ce II	52
3719.935		Fe I	5
3720.17	P	Fe II	23
3720.29	P	Zr II	32
3720.384		Ti I	177
3720.43		A II	42
3720.45		Cl III	5
3720.69	P	Rh II	7
3720.86		O III	21
3720.93		V I	98
3721.03	P	Ni I	181
3721.189		Fe I	491
3721.278		Fe I	75,705
3721.358		V I	11
3721.396		Fe I	131
3721.398		Y II	75
3721.512		Fe I	389
3721.606		Fe I	437
3721.632		Ti II	13
3721.69		Zr II	44
3721.847		Sm II	
3721.86		Ne II	37
3721.940		H	3
3721.95		O III	21
3721.998		V I	91
3722.028		Fe I	291
3722.068		Gd II	119
3722.16		V II	15
3722.23	P	Fe I	490
3722.24	P	Fe I	127
3722.484		Ni I	18
3722.564		Fe I	5
3722.568		Ti I	17
3722.601		V I	91
3722.759		Ce II	90
3722.77	P	Fe I	707
3722.79		Sb I	1
3723.324		V I	98
3723.38	P	Ni I	183
3723.40		Cr II	144
3723.506		Nd II	
3723.63		P II	22
3723.631		Ti II	72
3723.92	P	Fe II	14
3724.106		Ti II	73
3724.26	P	Ni I	183
3724.380		Fe I	124
3724.51		A II	131
3724.570		Ti I	131
3724.81		Mn II	8
3724.827		Ni I	182
3724.902		Sm II	5
3724.94		Eu II	2
3724.984		V II	102
3725.05		La II	13
3725.061		Tm II	
3725.155		Ti I	83
3725.29		Mn II	8
3725.30		O III	14
3725.304		Fe II	130
3725.498		Fe I	534
3725.65	P	Fe I	75
3725.675		Ce II	231
3725.81		O IV	6
3725.901		Fe II	
3726	P	O V	8
3726.06	P	Fe I	433
3726.235		Cb I	3
3726.653		Co I	40
3726.805		Sm II	19
3726.85		Cr I	73
3726.89	P	Fe I	75
3726.926		Ru I	2
3726.927		Fe I	385
3726.931		Mn I	24
3727.03	P	Fe I	668
3727.04	P	Fe II	192
3727.08		Ne II	5
3727.09		Y II	74

I A	Type	Element	Multiplet No.
3727.096		Fe I	387
3727.33		O II	3
3727.351		V II	21
3727.37		Cr II	117
3727.53	P	Fe I	705
3727.621		Fe I	21
3727.67	P	Fe I	225
3727.72		Zr II	112
3727.809		Fe I	386
3728.030		Ru I	2
3728.130		Nd II	
3728.335		V II	116
3728.423		Ce II	47
3728.469		Sm II	54
3728.49		O III	30
3728.668		Fe I	227
3728.67		P II	22
3728.67		P IV	3
3728.676		Ti I	116
3728.82		O III	30
3728.840		Co I	133
3728.889		Mn I	24
3728.933		Ni I	181
3729.03		O IV	6
3729.035		V I	91
3729.29		A II	10
3729.34	P	Fe I	530
3729.34		O II	62
3729.49		Mn II	8
3729.70		O III	30
3729.74		Zr II	8
3729.806		Ti I	17
3730.386		Fe I	533
3730.433		Ru I	2
3730.46	P	Fe I	389
3730.476		Co I	62
3730.64		S II	
3730.751		Ni I	2
3730.807		Cr I	2
3730.810		Tm II	11
3730.84		Gd II	20
3730.945		Fe I	228
3731.15	P	Fe I	950
3731.258		Sm II	11
3731.26		Zr II	112
3731.268		Co I	96
3731.374		Fe I	225
3731.42		La II	137
3731.64		V II	101
3731.932		Mn I	
3731.950		Al II	11
3731.983		V II	92
3732.032		Cr I	2
3732.13	P	Fe I	532
3732.13		O III	14
3732.390		Co I	62
3732.399		Fe I	76
3732.45		Gd II	5
3732.760		V II	15
3732.861		He I	24
3732.992		Be I	24
3733.08		Gd II	
3733.20	P	Fe I	225
3733.319		Fe I	5
3733.36		A II	68
3733.483		Co I	98
3733.607		V II	116
3733.73		Cl II	63
3733.767		Ti I	166
3733.910		Al II	11
3734.124		Tm II	6
3734.139		Co I	96
3734.370		H	3
3734.428		V I	97
3734.454		Ru II	1
3734.567		Al II	50
3734.715		Al II	50
3734.80		O III	21
3734.805		Al II	50
3734.867		Fe I	21
3734.94		Ne II	1
3735.158		V II	102
3735.325		Fe I	388
3735.49		A II	3
3735.660		Ti I	
3735.71	P	Fe I	127
3735.85		La II	29
3735.928		Co I	95
3735.94		O II	62
3735.980		Sm II	29

I A	Type	Element	Multiplet No.
3736.017		V II	102
3736.280		Be I	6
3736.41		La II	142
3736.45		Cr I	215
3736.56		Cr II	20
3736.78		O IV	6
3736.813		Ni I	30
3736.901		Ca II	3
3737.133		Fe I	5
3737.141		Sm II	
3737.55		Cr II	117
3737.88		Hf II	75
3737.89		A II	131
3737.992		V I	91
3738.003		Al II	11
3738.08		Eu II	
3738.13		Zr II	17
3738.306		Fe I	609
3738.38		Cr II	20.
3738.51	P	Fe I	918
3738.757		V I	97
3738.901		Ti I	166
3739.117		Sm II	
3739.120		Fe I	75
3739.13		K II	1
3739.193		Pr II	
3739.197		Sm II	5
3739.229		Ni I	2
3739.317		Fe I	74
3739.527		Fe I	
3739.6		Ti II	107
3739.782		Ni I	180
3739.80		Cb I	3
3739.92		O II	31
3739.940		Pb I	2
3740.061		Fe I	532a, 707
3740.241		V I	98
3740.247		Fe I	667
3741.059		Ti I	17
3741.288		Sm II	
3741.31		Eu II	11
3741.427		Nd II	
3741.504		V I	124
3741.56	P	Fe II	15
3741.633		Ti II	72
3741.69		O II	38
3741.727		Ce II	241
3742.07		Fe I	225
3742.14	P	Fe I	978
3742.20	P	Cr II	6
3742.280		Ru I	2
3742.34		Mo II	5
3742.393		Cb I	3
3742.56	P	Fe I	389
3742.621		Fe I	387
3742.937		Fe I	704
3742.968		Cr I	43
3742.99	P	Cr II	6
3743.20	P	Cr II	6
3743.364		Fe I	21
3743.40		Fe III	
3743.468		Fe I	806
3743.47		Gd II	2
3743.556		Eu II	11
3743.578		Cr I	43
3743.610		V II	21
3743.78	P	Fe I	290
3743.868		Sm II	18,34
3743.884		Cr I	43
3744.066		Tm I	
3744.105		Fe I	385
3744.22		P III	10
3744.42		K II	3
3744.490		Cr I	43
3744.562		Ni I	180
3744.66		Ne II	40
3744.73		O IV	6
3744.98		Hf II	76
3745.36	P	Fe II	131
3745.491		Co I	34
3745.561		Fe I	5
3745.605		Sm II	2
3745.806		V II	15
3745.83		N III	4
3745.901		Fe I	5
3745.97		Zr II	112
3746.46		A II	130
3746.486		Fe I	73
3746.56	P	Fe II	14
3746.92		A II	67

I A	Type	Element	Multiplet No.
3746.931		Fe I	386
3747	P	O V	8
3747.00	P	Fe I	388
3747.264		Cr I	289
3747.40	P	Fe III	71
3747.48		Hf II	27
3747.55		Y II	8
3747.66		N IV	8
3747.90		S III	1
3747.96		La II	
3747.982		V I	97,98
3748.010		Ti II	107
3748.056		Ce II	160
3748.101		Ti I	166
3748.18		Cr I	88
3748.264		Fe I	5
3748.374		Ca I	27
3748.46		Cl II	6
3748.489		Fe II	154
3748.492		Fe I	805
3748.614		Cr I	43
3748.68		Cr II	11
3748.73		S III	
3748.81		Cl III	5
3748.88		Gd II	105
3748.91	P	Fe I	289
3748.969		Fe I	386
3748.998		Cr I	43
3749.045		Ni I	1
3749.487		Fe I	21
3749.49		O II	3
3749.55	P	Zr II	112
3749.930		Co I	95
3750.00		Cl II	6
3750.154		H	2
3750.349		Ca I	27
3750.50		A II	3
3750.56		Cr II	
3750.65		Zr II	18
3750.677		Fe I	225
3750.74		S III	1
3750.763		Mn I	24
3750.88		V II	21
3751.059		Fe I	667
3751.06		A II	81
3751.09	P	Fe I	74
3751.222		V II	100
3751.26		Ne II	1
3751.60		Cr II	117
3751.60		Zr II	71
3751.625		Co I	98
3751.812		Tm I	
3751.820		Fe I	287
3752.420		Fe I	385,392
3752.524		Os I	2
3752.65	P	N III	11
3752.679		Nd II	33
3752.860		Ti I	17
3753.10		Al II	39
3753.154		Fe I	177
3753.18		Fe III	83
3753.26	P	Cr II	20
3753.367		Ca I	27
3753.53		A II	80,128
3753.610		Fe I	73
3753.623		Ti I	17
3753.83		Ne II	38
3754.06		A II	115
3754.12	P	Rh II	7
3754.346		Co I	132
3754.506		Fe I	386
3754.59		Cr II	20
3754.62		N III	4
3754.67		O III	2
3754.89	P	Fe I	949
3755.13		Cr II	20
3755.276		Sm II	34
3755.425		Ce II	128
3755.447		Co I	96
3755.54		Mo II	5
3755.56		Gd II	85
3755.563		Fe II	154
3755.61		Ca II	8
3755.701		V I	124
3755.81		Cr I	72
3755.82	P	O IV	6
3756.069		Fe I	74
3756.10		He I	66
3756.411		Sm I	2
3756.411		Sm II	44

I A	Type	Element	Multiplet No.
3756.55		Cr II	144
3756.83		Cr I	72
3756.860		Tm II	9
3756.939		Fe I	805
3756.96		Zr II	8
3757.093		W I	3
3757.174		Cr I	43
3757.21		O III	2
3757.459		Fe I	668
3757.529		Sm II	
3757.60	P	N III	11
3757.66	P	N III	11
3757.662		Cr I	43
3757.684		Ti II	72
3757.80		Zr II	120
3757.862		Ce II	48
3757.929		W I	4
3758.044		Cr I	43
3758.11	P	Fe I	704
3758.22		V II	100
3758.235		Fe I	21
3758.31		Gd II	20
3758.36		Ca II	8
3758.45		O IV	6
3758.72		Cr I	12
3758.9		Y II	74
3758.944		Nd II	
3758.968		Sm II	
3759.00		Gd II	2
3759.08		La II	13
3759.155		Fe I	855
3759.291		Ti II	13
3759.460		Fe II	154
3759.556		Cb I	3
3759.684		Co I	131
3759.87		O III	2
3760.031		Ru I	2
3760.052		Fe I	177
3760.133		W I	3
3760.24		V II	21
3760.401		Co I	40
3760.404		Ce II	109
3760.534		Fe I	76
3760.694		Ce II	92
3760.694		Sm II	18,51
3760.71		Gd II	37
3760.92		Gd II	20
3761.06	P	Fe I	706
3761.12		Eu II	11
3761.20		V II	129
3761.320		Ti II	13
3761.331		Tm II	2
3761.416		Fe I	227
3761.442		V I	97
3761.62		Ca III	3
3761.69		Cr II	11
3761.72		Ca I	8
3761.82		P II	1
3761.866		Ti II	107
3761.867		Pr II	
3761.90		Cr II	11
3761.913		Tm II	2
3762	P	O V	8
3762.205		Fe I	705
3762.41		Si IV	3
3762.51		Hf II	101
3762.588		Sm II	25
3762.618		Ni I	
3762.62	P	N III	11
3762.63		O II	31
3762.894		Fe II	192
3763.00		Gd II	1
3763.13		Cb II	10
3763.141		V I	98
3763.33		Gd II	37
3763.356		Mo I	8
3763.377		Mn I	24
3763.475		Nd II	
3763.52		A II	54
3763.57	P	Fe I	128
3763.790		Fe I	21
3764.09		Fe II	29
3764.117		Ce II	41
3764.21	P	Fe I	74
3764.370		Sm II	34
3764.38		Zr I	10
3764.60		Gd II	85
3764.811		Pr II	
3765.044		Ce II	208
3765.27		A II	42

I A	Type	Element	Multiplet No.
3765.542		Fe I	608
3765.62		Cr II	20
3765.70		Fe I	608
3765.93		Eu II	11
3766.092		Fe I	226
3766.13		A II	29
3766.29		Ne II	1
3766.445		Ti I	82
3766.514		Ce II	124
3766.65		Cr II	20
3766.665		Fe I	386
3766.71		Zr I	10
3766.83		Zr II	7
3766.92		Hf II	75
3767.04		Gd II	20
3767.05		La II	151
3767.18	P	Cr II	20
3767.194		Fe I	21
3767.358		Sm II	46
3767.36		K II	2
3767.431		Cr I	42
3767.57		CI II	6
3767.720		V II	100
3767.73	P	Fe I	918
3767.755		Sm II	
3767.89		Zr II	31
3768.030		Fe I	73
3768.08		Cr I	42
3768.13		Cl II	6
3768.23		Fe I	368
3768.240		Cr I	43
3768.39		Gd II	2
3768.57	P	Cr II	6
3768.62		Cr I	42
3768.71		P II	1
3768.734		Cr I	43
3768.81		He I	65
3769.00		Cr I	42
3769.046		Ce II	50
3769.13		CI II	6
3769.37	P	Cr II	6
3769.45		Gd II	37
3769.455		Ni II	4
3769.644		Nd II	67
3769.695		Pr II	16
3769.995		Fe I	387
3770.305		Fe I	287
3770.37	P	N III	11
3770.405		Fe I	177
3770.412		Ti II	107
3770.517		Mo I	8
3770.54		A II	42
3770.632		H	2
3770.69		Gd II	
3770.974		V II	21
3771.08		N III	4
3771.36		Hf II	29
3771.45	P	N III	11
3771.50	P	Fe I	607
3771.652		Ti I	17
3771.98		Zr II	44
3772.06		Zr II	31
3772.530		Ni I	15
3772.854		Pr II	
3772.962		V II	100
3773.12		La II	141
3773.13		Si IV	3
3773.364		Fe I	531
3773.68		CI II	6
3773.699		Fe I	386
3773.80		Fe III	34
3773.80		V II	129
3774.00		O III	2
3774.25		CI II	6
3774.294		Sm II	43
3774.3		Al II	33
3774.33		Y II	7
3774.331		Ti I	16
3774.38	P	O IV	6
3774.52		S III	10
3774.54		A II	
3774.599		Co I	96
3774.645		Mn I	45
3774.650		Ti II	12
3774.678		V II	129
3774.823		Fe I	73
3775.03		P II	19
3775.187		V I	97
3775.572		Ni I	33
3775.724		TI I	1

I A	Type	Element	Multiplet No.
3775.860		Fe I	287
3776.062		Ti II	72
3776.454		Fe I	74
3776.527		Mn I	6
3776.56		Y II	8
3776.80		S II	51
3777.061		Fe I	432
3777.16		Ne II	1
3777.32		Cr I	41
3777.43		Fe III	95
3777.448		Fe I	223
3777.543		Co I	96
3777.55		A II	81
3777.60		O II	31
3777.64		Hf I	1
3777.919		Ru II	1
3777.93		Cr I	41
3778.063		Ni I	15
3778.136		Sm II	
3778.320		Fe I	367
3778.357		V II	21
3778.37	P	Fe II	192
3778.509		Fe I	664
3778.684		V I	28
3778.69		Cr II	
3778.697		Fe I	73
3778.90		S III	5
3779.213		Fe I	290
3779.23	P	N III	11
3779.35		CI III	8
3779.424		Fe I	222
3779.444		Fe I	665
3779.486		Fe I	74
3779.58	P	Fe II	23
3779.648		V I	69
3780.09		Hf II	18
3780.391		Nd II	19
3780.53		La II	141
3780.53		Zr I	8
3780.67		La II	55
3780.763		Sm II	
3780.770		W I	8
3780.84		A II	54
3780.927		Sm II	38
3781.188		Fe I	74
3781.23		Cl II	72
3781.379		Cb II	9
3781.393		V I	10,97
3781.510		Fe II	130
3781.597		Mo I	8
3781.620		Ce II	163
3781.68		He II	5
3781.938		Fe I	917
3782.139		Ti I	82
3782.195		Os I	3
3782.24		Zr II	44
3782.302		Y II	61
3782.34		Gd II	
3782.450		Fe I	388
3782.524		Ce II	142
3782.6		S II	23
3782.608		Fe I	491
3782.72		Zr II	120
3782.78		Hf II	26
3783.16		S II	41
3783.19		K II	2
3783.347		Fe II	14
3783.530		Ni I	30
3783.561		Tm II	11
3784.250		Nd II	
3784.27	P	Fe I	607
3784.81		La II	13
3784.886		He I	64
3785.01		O II	95
3785.421		Mn I	45
3785.706		Fe I	608
3785.78	P	Fe I	704
3785.950		Fe I	177
3786.043		Ti I	57
3786.176		Fe I	367
3786.22		Cr I	71
3786.253		Ti I	165
3786.33	P	Ti II	12
3786.37	P	Fe II	15
3786.40		A II	3
3786.632		Ce II	51
3786.678		Fe I	22
3786.70		P II	1
3786.94		Fe III	71
3787.064		Cb I	3

I A	Type	Element	Multiplet No.
3787.164		Fe I	916
3787.203		Sm II	5
3787.235		V II	100
3787.56		Gd II	20
3787.883		Fe I	21
3787.89	P	Cr II	6
3788.125		Sm II	25
3788.474		Rh I	6
3788.70		Y II	7
3788.753		Ce II	47
3788.804		Ti I	16
3788.864		Cr I	139
3788.91		Fe III	102
3789.178		Fe I	289
3789.293		Ti I	115
3789.49		Cr I	41
3789.570		Fe I	226
3789.723		Cr I	24
3789.82	P	Fe I	702
3790.095		Fe I	22
3790.138		Cb I	3
3790.215		Mn I	6
3790.228		Cr I	139
3790.24	P	Fe I	224
3790.324		V I	28
3790.454		Cr I	139
3790.469		V I	69
3790.656		Fe I	387
3790.756		Fe I	73,127
3790.83		La II	12
3790.96		Ne II	30
3791.17		Gd II	85
3791.209		Cb I	2
3791.26		O III	2
3791.326		V I	10
3791.376		Cr I	139
3791.39		Zr I	8
3791.41		Si III	5
3791.504		Fe I	223
3791.72		Gd II	46
3791.73		Fe I	703
3792.025		Sm II	5
3792.137		Cr I	139
3792.156		Fe I	287
3792.32		Zr II	81
3792.326		Ce II	129
3792.337		Ni I	2
3792.42		Cr I	71
3792.46		S II	50
3792.524		Pr II	
3792.56		Y II	61
3792.834		Fe I	74
3792.87		N III	11
3793.217		Rh I	9
3793.28	P	Fe I	386
3793.289		Cr I	139
3793.354		Fe I	388
3793.37		Hf II	1
3793.478		Fe I	387
3793.52		Fe III	71
3793.608		Ni I	4
3793.61		P II	1
3793.614		V I	9
3793.75		CI II	
3793.872		Fe I	367
3793.879		Cr I	139
3793.971		Sm II	11
3794.340		Fe I	177
3794.366		V II	100
3794.48		O II	34
3794.608		Cr I	139
3794.69		S III	10
3794.78		La II	12
3794.964		V I	9,28
3795.004		Fe I	21
3795.10		P II	1
3795.169		Tm II	6
3795.256		Ce II	50
3795.37		A III	5
3795.759		Tm II	6
3795.903		Ti I	115
3796.00		Fe I	176
3796.11		Si III	5
3796.33		He II	5
3796.37		Gd II	2
3796.47		Zr II	71
3796.48		V II	167
3796.55	P	Fe II	143
3796.60		A II	129
3796.899		Ti II	12
3796.90		Fe I	667
3796.99		Cr I	41
3797.126		Cr I	139
3797.283		Sm II	11
3797.517		Fe I	607
3797.716		Cr I	139
3797.730		Sm II	
3797.900		H	2
3797.948		Fe I	222
3797.95		Hf II	29
3798.127		Cb I	3
3798.259		Mo I	1
3798.276		Ti I	115
3798.36	P	Fe II	14
3798.513		Fe I	21
3798.60	P	Fe II	23
3798.661		V I	80
3798.752		Tm II	11
3798.80		CI II	62
3798.901		Ru I	1
3799.009		Eu II	11
3799.038		Ce II	136
3799.17		Pd I	1
3799.259		Mn I	6
3799.311		Rh I	8
3799.347		Ru I	1
3799.39		A II	54
3799.542		Sm II	22
3799.549		Fe I	21
3799.81		Ti II	13
3799.912		V I	28
3800.02		Ne II	39
3800.122		Ir I	1
3800.240		Mn II	14
3800.303		Pr II	
3800.370		Sm II	43
3800.39		Hf II	18
3800.43		Fe III	47
3800.552		Mn I	45
3800.73		Zr II	17
3800.883		Y II	61
3800.887		Sm II	29
3801.022		Sn I	2
3801.093		Ti I	165
3801.21		Cr II	
3801.29		Gd II	
3801.529		Ce II	172
3801.633		Mn II	14
3801.681		Fe I	367
3801.804		Fe I	367
3801.907		Mn I	
3801.975		Fe I	704
3802.08		P III	10
3802.283		Fe I	666
3802.65		S II	50
3802.883		V I	67
3802.928		Cb I	3
3802.958		Mn II	14
3803.097		Ce II	37
3803.14		O II	34
3803.19		A II	129
3803.24	P	Fe I	122
3803.474		Nd II	
3803.474		V I	28
3803.784		V I	68
3803.881		Mn II	14
3803.902		V I	10
3804.013		Fe I	702
3804.476		Mn II	14
3804.589		V I	97
3804.798		Cr I	139
3805.24		CI II	62
3805.345		Fe I	608
3805.359		Nd II	19
3805.626		Sm II	10
3805.765		He I	63
3806.07		Hf II	75
3806.203		Fe I	731
3806.30		Ne II	30
3806.55		Cr I	24
3806.56		Si III	5
3806.697		Fe I	607
3806.719		Mn I	6
3806.76	P	Fe I	224
3806.796		V I	68
3806.82	P	Fe II	153
3806.829		Cr I	214
3807.144		Ni I	33
3807.227		Nd II	19
3807.41		Zr II	31
3807.505		V I	28
3807.534		Fe I	73
3807.65		Gd II	85
3807.926		Cr I	139
3808.102		Co I	17
3808.124		Ce II	59
3808.286		Fe I	489
3808.521		V I	9
3808.61		A II	3
3808.7		Y II	73
3808.731		Fe I	222
3808.772		Nd II	
3808.79		La II	43
3809.043		Fe I	367
3809.224		Ce II	204
3809.49		A II	42
3809.51		CI II	62
3809.592		Mn I	6
3809.597		V I	28
3809.67		S II	50
3810.10		CI II	62
3810.21	P	Fe II	143
3810.59		Hf II	96
3810.724		Tm II	9
3810.759		Fe I	665
3810.90	P	Fe I	224
3810.96		O III	2
3811.05		Fe I	223,287
3811.065		Co I	31
3811.073		Nd II	69
3811.22		A II	81
3811.32		Ni I	15
3811.35		O VI	1
3811.385		Ti I	165
3811.774		Nd II	31
3811.80	P	Fe I	701
3811.80		S II	
3811.892		Fe I	287
3812.067		Sm II	10
3812.18		Y II	61
3812.250		Cr I	214
3812.470		Co I	40
3812.964		Fe I	22
3813.059		Fe I	222
3813.07	P	Fe I	176
3813.12		V II	128
3813.261		Ti I	189
3813.390		Ti II	12
3813.402		Be I	5
3813.45	P	V I	28
3813.492		V I	9
3813.50		He II	4
3813.638		Fe I	283
3813.8		Y II	72
3813.891		Fe I	854
3813.94	P	Fe I	176
3813.97		Gd II	2
3813.98		Zr II	100
3814.00		Cr II	
3814.121		Fe II	153
3814.42		Ra II	1
3814.457		Co I	62
3814.526		Fe I	22
3814.580		Ti II	12
3814.622		Cr I	214
3814.725		Nd II	
3814.855		Ti I	189
3814.97		Zr II	8
3815.012		Rh II	7
3815.38		V II	166
3815.433		Cr I	71
3815.495		Eu II	
3815.514		V I	28
3815.831		Ce II	37
3815.842		Fe I	45
3816.166		Pr II	
3816.173		Cr I	40
3816.25		La II	134
3816.318		Co I	62
3816.340		Fe I	73
3816.458		Co I	62
3816.64		Gd II	1
3816.75		O III	18
3816.753		Mn I	6
3816.876		Co I	86
3816.92	P	Fe I	387
3817.20		Hf II	62
3817.24		La II	168
3817.395		Tm II	
3817.455		Ce II	222

I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.
3817.59		Zr II	18	3827.079		Fe II	153	3836.10		C II	13
3817.639		Ti I	189	3827.27		Zr II		3836.112		Ce II	60
3817.64		Fe I	701	3827.46		P II	26	3836.332		Fe I	664
3817.844		Cr I	40	3827.51		Zr II	121	3836.541		Nd II	
3817.844		V I	10	3827.572		Fe I	284	3836.76		Zr II	16
3817.940		Co I	131	3827.62		Cl II	69	3836.763		Ti I	
3818.244		V I	9	3827.67	P	Fe II	128	3836.91		Gd II	20
3818.27		N I	11	3827.825		Fe I	45	3837.132		Fe I	222
3818.281		Pr II		3828.180		Ti I	189	3837.210		Ce II	112
3818.34		Y II	7	3828.44		Fe III	70,95	3837.80		S III	5
3818.40		Cl II	62	3828.510		Fe I	287	3838.094		He I	61
3818.44		Ne II	39	3828.559		V I	9	3838.198		Tm II	11
3818.481		Cr I	40	3828.836		V I	67	3838.28		Zr II	17
3818.78		Zr II	111	3828.883		Mo I	8	3838.2918		Mg I	3
3818.862		Cb II	10	3829.125		Fe I	948	3838.2943		Mg I	3
3819.04		A II	129	3829.133		W I	3	3838.316		S III	5
3819.25	P Forb	He I	23	3829.27		Cl II	9	3838.37		Cl II	69
3819.50	P	Fe I	703	3829.3549		Mg I	3	3838.39		N II	30
3819.564		Cr I	70	3829.458		Fe I	366,663	3838.542		Ce II	114
3819.57	P	Cr I	88	3829.47	P Forb	He I	21	3838.941		Sm II	34
3819.606		He I	22	3829.53		V II	3	3838.981		Nd II	28
3819.62	P	Fe I	122	3829.655		V II	3	3839.002		V I	44
3819.67		Eu II	1	3829.680		Mn I	6	3839.259		Fe I	529
3819.761		He I	22	3829.77		Ne II	39	3839.614		Fe I	995
3819.84		Zr II	81	3829.771		Fe I	221	3839.64		Gd II	20
3819.908		Co I	130	3829.80		N II	30	3839.777		Mn I	6
3819.963		V I	28	3830.032		Cr I		3840.140		V I	66
3819.97		Cr I	40	3830.293		Sm II	10	3840.20	P	Fe I	120
3820.25		Cl II	69	3830.39		N I	11	3840.439		Fe I	20
3820.299		V I	44	3830.43		A II	3,128	3840.44	P	V I	44
3820.428		Fe I	20	3830.45		O II	34	3840.70		Cr I	70
3820.74		Hf I	5	3830.719		Pr II		3840.72		La II	28
3820.871		Ce II	208	3830.757		Fe I	224	3840.752		V I	9
3820.874		Cr I	40	3830.80		Cl II	69	3841.051		Fe I	45
3821.181		Fe I	608	3830.850		Fe I	284	3841.082		Mn I	6
3821.487		V I	28	3831.017		V II	3	3841.17		Lu I	3
3821.582		Cr I	40	3831.032		Cr I	24	3841.277		Cr I	69
3821.68		O II	34	3831.41		S II		3841.35	P	Fe II	128
3821.834		Fe I	222	3831.501		Sm II	43	3841.458		Co I	32
3821.92	P	Fe II	14	3831.690		Ni I	31	3841.54		A II	54
3822.009		V I	9	3831.75		Fe III	109	3841.890		V I	8
3822.026		Ti I	189	3831.80		Gd II	3	3842.03		Cr I	70
3822.07		N I	11	3831.840		Cb II	10	3842.037		Al II	49
3822.10		Cr I	40	3831.85		S III	5	3842.047		Co I	33
3822.17		Gd II	19	3832.12		C II	13	3842.20		Gd II	
3822.262		Rh I	8	3832.2996		Mg I	3	3842.20		N II	30
3822.41		Zr I	10	3832.3037		Mg I	3	3842.213		Al II	49
3822.63	P	O I	36	3832.31		Pd I	1	3842.317		Al II	49
3822.737		Fe II		3832.32		Cr I	24	3842.82		O II	12
3822.888		V I	28	3832.745		Ce II	115	3842.90	P	Fe I	222
3822.987		Mo I	8	3832.835		V I	80	3842.975		Fe I	221
3823.213		V I	28	3832.873		Ni I	1	3843.000		Sc II	1
3823.41		Zr II	44	3832.89		Y II	7	3843.03		Zr II	7
3823.469		O I	36	3832.94		Zr II	7	3843.16	P	Sc II	17
3823.513		Mn I	6	3833.02	P	Fe II	23	3843.259		Fe I	528
3823.522		Cr I	24	3833.059		Sc II	1	3843.26		Cl II	49
3823.571		Pr II	14	3833.10		O II	13	3843.500		Sm II	43
3823.72		Zr II	31	3833.186		Ti I		3843.58		O II	13
3823.893		Mn I	6	3833.226		V I	67	3843.64		Cr I	87
3823.903		Ce II	115	3833.311		Fe I	221	3843.692		Co I	84
3823.990		V I	44	3833.40		Cl II	69	3843.72	P	Fe I	703
3824	P	N IV	10	3833.49		Cr I	11	3843.80		Gd II	17
3824.074		Fe I	224	3833.574		He I	62	3843.983		Mn I	6
3824.175		Sm II	18	3833.674		Ti I		3844.276		Ni I	137
3824.306		Fe I	607	3833.71		Cr I	70	3844.438		V I	7
3824.425		O I	36	3833.757		Mo I	8	3844.48	P	V II	20
3824.444		Fe I	4	3833.80		He II	4	3844.579		Gd II	2
3824.47		Cl III	9	3833.828		Sm II	29	3844.58		Ni I	181
3824.73	P	Fe I	221	3833.862		Mn I	6	3844.75		A II	54
3824.78		Y II	72	3833.87		Zr II	100	3844.892		V I	44
3824.882		Cb I	2	3833.889		Rh I	9	3845.170		Fe I	124
3824.913		Fe II	29	3834.22	P	V I	80	3845.18	P	Fe II	127
3825.090		O I	36	3834.225		Fe I	20	3845.21	P	Fe I	701
3825.249		O I	36	3834.24		N I	11	3845.21		S II	22
3825.390		Cr I	70	3834.24		O VI	1	3845.42		A II	9
3825.404		Fe I	123	3834.364		Mn I	6	3845.42		Cl II	25
3825.530		O I	36	3834.46	P	Fe I	663	3845.468		Co I	34
3825.70		A II	129	3834.556		Ce II	49	3845.68		Fe III	35
3825.884		Fe I	20	3834.735		Cr I	70	3845.69		Cl II	25
3826.05		Gd II	19	3834.81	P	Fe II	129	3845.692		Fe I	771
3826.202		Sm II	51	3835.058		W I	2	3845.84		Cl II	25
3826.292		Pr II		3835.09		La II	55	3845.974		V I	
3826.416		Nd II	33	3835.386		H	2	3846.00		La II	26
3826.425		Cr I	70	3835.497		Co I	114	3846.001		Fe I	703
3826.63	P	Fe I	176	3835.560		V I	44	3846.29	P	Fe I	947
3826.701		Mo I	8	3835.725		Sm II	18	3846.31	P	Fe II	128
3826.774		V I	44	3835.96		Zr I	8	3846.412		Fe I	804
3826.83		A II	54	3836.054		V I	44	3846.438		Ti I	
3826.836		Fe I	283	3836.070		Cr I	70	3846.516		Y II	83
3826.968		V II	128	3836.085		Ti II	12	3846.605		Pr II	

I A	Type	Element	Multiplet No.
3846.803		Fe I	664
3846.949		Fe I	176
3847.01		Zr I	10
3847.086		F II	1
3847.252		Mo I	8
3847.323		V I	7
3847.323		V II	156
3847.38		N II	30
3847.501		W I	4
3847.511		Sm II	34
3847.89		O II	12
3848.023		Tm II	2
3848.194		Y II	72
3848.233		Nd II	19
3848.24		Mg II	5
3848.29	P	Fe I	224
3848.524		Nd II	
3848.597		Ce II	36
3848.779		Sm II	
3848.983		Cr I	69
3849.02		La II	12
3849.26		Zr I	6
3849.324		V I	
3849.365		Cr I	138
3849.52		Hf II	61
3849.534		Cr I	24
3849.58		Ni II	11
3849.758		V II	33
3849.969		Fe I	20
3849.987		F II	1
3850.042		Cr I	69
3850.40		Mg II	5
3850.409		V II	11
3850.57		A II	10
3850.69		Gd II	2
3850.81		O II	12
3850.820		Fe I	22
3850.825		Pr II	
3850.93		S II	50
3850.945		Co I	17
3850.97		Cl II	25
3850.97		Gd II	2
3851.04		O II	12
3851.171		V I	44
3851.38		Cl II	25
3851.47		O II	13
3851.58		Fe I	
3851.617		Pr II	
3851.667		F II	1
3851.69		Cl II	25
3851.748		Nd II	35
3851.848		Co I	128
3851.880		Sm II	29
3852.10		V II	3
3852.218		Cr I	24
3852.45		Gd II	2
3852.574		Fe I	73
3852.58		Cr I	11
3852.805		Pr II	
3853.038		Ti I	176
3853.07		Zr II	81
3853.09		S II	30
3853.164		Ce II	39
3853.176		Cr I	69
3853.462		Fe I	429
3853.657		Si II	1
3853.719		Ti I	176
3854.177		Gd II	50
3854.187		Ce II	62
3854.209		Sm II	
3854.220		Cr I	69
3854.322		Ce II	61
3854.375		Fe I	567
3854.75		Cl II	84
3854.905		Pr II	
3854.91		La II	55
3855.08		N II	30
3855.18		A II	81
3855.286		Cr I	69
3855.329		Fe I	283
3855.370		V I	7
3855.43		Zr II	18
3855.56		Gd II	2
3855.571		Cr I	69
3855.65	P	Cr I	138
3855.841		V I	9
3855.846		Fe I	567
3856.021		Si II	1
3856.07		N II	30
3856.16		A II	55

I A	Type	Element	Multiplet No.
3856.16		O II	12
3856.281		Cr I	69
3856.373		Fe I	4
3856.515		Rh I	7
3856.796		Co I	60
3857.032		Ce II	158
3857.18		O II	13
3857.240		Ce II	127
3857.26	P	Y II	16
3857.631		Cr I	69
3857.912		Sm II	28
3858.07		He II	4
3858.133		Ti I	176
3858.301		Ni I	32
3858.32		A III	5
3858.48	P	Fe I	565
3858.90		Cr I	138
3859.21		Fe I	175
3859.24		Mg I	21
3859.26		S II	30
3859.33		Al II	38
3859.341		V I	44
3859.36	P	Sc II	1
3859.913		Fe I	4
3860.12	P	Fe II	128
3860.13		Cr I	39
3860.15		S II	41
3860.46		Fe III	109
3860.64		S II	50
3860.64		S III	5
3860.74	P	Fe I	701
3860.80		Cl II	25
3860.915		Fe II	
3860.98		Cl II	25
3861.079		Ti I	
3861.164		Co I	33
3861.18		Eu II	
3861.341		Fe I	283,663
3861.40		Cl II	25
3861.60		Fe I	663
3861.95		Cl II	84
3862.054		Sm II	10
3862.17	P	Cr II	129
3862.223		V I	8
3862.592		Si II	1
3862.823		Ti I	175
3863.056		Cb II	9
3863.072		Ni I	181
3863.327		Nd II	27
3863.409		Nd II	26
3863.413		Fe II	152
3863.50		O II	12
3863.607		Co I	131
3863.70	P	Fe I	565
3863.745		Fe I	280
3863.81		V II	33
3863.866		V I	66
3863.88		Zr I	8
3863.953		Fe II	127,152
3864.115		Mo I	1
3864.13		O II	11
3864.30	P	Fe I	565
3864.300		V I	64
3864.31	P	Fe I	221
3864.33		Zr I	10
3864.335		W I	3
3864.45		O II	12
3864.49		La II	141
3864.60		Cl II	84
3864.68		O II	12
3864.75		Hf II	98
3864.862		V I	7
3865.458		Pr II	
3865.526		Fe I	20
3865.59		Cr II	167
3865.72		V II	20
3866.01		Cr II	130
3866.160		Al II	17
3866.446		Ti I	176
3866.54		Cr II	130
3866.744		V II	11
3867.219		Fe I	488
3867.26		Gd II	50
3867.32		Hf II	53
3867.45	P	Fe I	221
3867.477		He I	20
3867.56		S I	
3867.602		V I	7
3867.631		He I	20
3867.739		Ti I	176

I A	Type	Element	Multiplet No.
3867.839		Ru I	9
3867.925		Fe I	221
3867.986		W I	7
3868.243		Fe I	430
3868.397		Ti I	175
3868.53		A II	90
3868.62		Cl II	84
3868.84		C II	18
3869.045		Nd II	34
3869.085		Mo I	8
3869.10		N I	
3869.275		Ti I	175
3869.562		Fe I	284
3869.590		Fe I	284
3869.61		A II	80
3870.057		Al II	74
3870.267		Cr I	11
3870.506		Ca I	26
3870.534		Co I	129
3871.078		V I	66
3871.54		Gd II	1
3871.60		Ni I	181
3871.62		C II	18
3871.64		La II	13
3871.750		Fe I	429
3871.778		Sm II	18
3871.819		He I	60
3872.15		A II	54
3872.308		Y II	61
3872.45		O II	11
3872.504		Fe I	20
3872.55		Hf II	27
3872.552		Ca I	26
3872.62		Gd II	19
3872.748		V I	43
3872.76	P	Fe II	29
3872.835		W I	4
3872.923		Fe I	284
3872.98	P	Fe II	128
3873.120		Co I	18
3873.203		Ti I	176
3873.74		K II	3
3873.763		Fe I	175
3873.953		Co I	18
3874.053		Fe I	120
3874.10		O II	11
3874.37		Zr II	89
3874.41	P	Cr II	143
3874.570		Cr I	138
3874.76	P	Cr II	143
3875.036		Ce II	162
3875.075		V I	7
3875.14		Cr I	138
3875.193		Sm II	
3875.26		A II	2
3875.262		Ti I	15,175
3875.426		V I	43
3875.46		Gd II	50
3875.545		Sm II	17
3875.67		V II	20
3875.807		Ca I	26
3875.82		O II	13
3875.902		V I	7
3876.043		Fe I	22
3876.051		C II	33
3876.086		V I	8
3876.188		C II	33
3876.409		C II	33
3876.65		Lu II	3
3876.670		C II	33
3876.671		Fe I	121
3876.831		Co I	17,62
3876.974		Ce II	82
3877.11		Hf II	75
3877.225		Pr II	
3877.591		Ti I	175
3877.60		Zr I	58
3878.021		Fe I	20
3878.180		He I	59
3878.19	P	Fe I	565
3878.22		C II	33
3878.28		Y II	7
3878.372		Ce II	48
3878.575		Fe I	4
3878.58		Mg I	20
3878.582		Nd II	
3878.61	P	Ti I	164
3878.663		Fe I	175
3878.715		V II	33
3878.726		Fe I	664

I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.
3878.750		Co I	62	3889.948		Ti I	15	3900.546		Ti II	34
3879.04		Zr I	6	3889.990		Ce II	50	3900.63		A II	54
3879.222		Cr I	138	3890.080		Sm II	17	3900.64		Hf II	103
3879.60		C II	33	3890.184		V I	8	3900.680		Al II	1
3880.34		A II	54	3890.241		Mg I	47	3900.790		Tm II	9
3880.466		Pr II		3890.32		Zr I	8	3900.958		Ti I	15
3880.59		C II	33	3890.39		Fe I	567	3901.03	P	Fe I	834
3880.766		Sm II	10	3890.528		Tm II	1	3901.152		V I	126
3880.779		Nd II	32	3890.580		Nd II		3901.33	P	V II	20
3880.82		Hf II	6	3890.82		Cr I	262	3901.775		Mo I	8
3881.04		V II	143	3890.844		Fe I	280	3901.850		Nd II	
3881.214		Cr I	138	3890.940		Nd II		3902.09	P	Sc II	9
3881.383		Sm II	33	3891.119		V I		3902.108		Cr I	238
3881.399		Ti I	15	3891.210		Sm II	22	3902.250		V I	7
3881.402		W I	2	3891.227		V I	43	3902.398		Gd II	19
3881.84		Gd II	36	3891.25		V II	20	3902.558		V I	43
3881.856		Cr I	138	3891.39		Zr I	11	3902.915		Cr I	23
3881.869		Co I	18	3891.40		A II	2	3902.948		Fe I	45
3881.92		Ni II	13	3891.781		Ba II	4	3902.968		Mo I	1
3881.94		Gd II	50	3891.928		Fe I	733	3903.164		Cr I	23
3881.97		Zr II	134	3891.97		A II	2	3903.27		V II	11
3882.147		Ti I	175	3891.976		Mg I	47	3903.417		Sm II	
3882.197		O II	12	3891.98	P	V II	11	3903.77		Zr II	7
3882.28	P	Ti II	34	3892.118		Co I	130	3903.902		Fe I	429
3882.313		Ti I	176	3892.14		Cr II	167	3904.02		Mg I	19
3882.446		Ce II	87	3892.321		S II	50	3904.340		Ce II	91
3882.45		O II	11	3892.859		V I	7	3904.64	P	Ni I	29
3882.892		Ti I	176	3892.898		Fe I	283	3904.785		Ti I	56
3883.132		Tm I		3892.98		Fe I	567	3904.79		P III	9
3883.15		O II	12	3893.067		Co I	114	3904.790		Co I	171
3883.208		V II	11	3893.14		A II	91	3905.01	P	Fe I	703
3883.282		Fe I	663	3893.316		Fe I	364	3905.18	P	Fe I	564
3883.292		Cr I	23	3893.376		Mg I	47	3905.527		Si I	3
3883.43		V II	20	3893.391		Fe I	430	3905.64		Cr II	167
3883.437		Tm II	5	3893.53		O II	11	3905.66	P	Fe I	153
3883.660		Cr I	138	3893.924		Fe I	175	3905.88	P	Cr II	128
3883.77		Hf II	18	3894.005		Fe I	663	3905.886		Nd II	
3883.80		C III	15	3894.035		Cr I	23	3906.037		Fe II	173
3883.80		Cl II	55	3894.073		Co I	34	3906.287		Co I	17
3884.090		Ti I	175	3894.19		Pd I	8	3906.482		Fe I	4
3884.359		Fe I	282	3894.49		Fe I	566	3906.748		Fe I	664
3884.465		V I	65	3894.627		Nd II	29	3906.748		V I	42,43
3884.601		Co I	32	3894.696		Gd II	1	3906.95		S II	3
3884.66		Fe I	565	3894.976		Co I	18	3906.97	P	Fe I	567
3884.847		V II	33	3895.03		P III	9	3907.10		Eu II	5
3885.07	P	Fe I	732	3895.114		Ce II	210	3907.289		Ce II	253
3885.084		Cr I	138	3895.12		Cr II	143	3907.45		O II	11
3885.09		La II	151	3895.16		Cr II	106	3907.464		Fe I	284
3885.154		Fe I	430	3895.230		Gd II	50	3907.476		Sc I	8
3885.190		Pr II	18	3895.243		Ti I	176	3907.52		V II	178
3885.218		Cr I	23	3895.26		A II	55	3907.65	P	Ti II	97
3885.275		Co I	31	3895.44	P	Fe I	565	3907.778		Cr I	262
3885.286		Sm II	46	3895.59	P	Ti I	164	3907.937		Fe I	280
3885.41		Zr I	7	3895.658		Fe I	4	3908.033		Pr II	11
3885.512		Fe I	124	3895.662		Mg I	47	3908.408		Ce II	65
3885.76	P	Fe I	567	3895.791		Gd II		3908.431		Pr II	11
3885.770		V I	65	3896.11	P	Fe II	23	3908.54	P	Fe II	29
3885.87	P	Ni I	1	3896.155		V I	43	3908.543		Ce II	127
3885.93	P	Fe I	946	3896.155		V II	10	3908.68	P	Fe I	153
3885.95	P	Ti I	164	3896.30		O II	11	3908.755		Cr I	23
3885.99		C III	15	3896.53		Zr I	9	3908.90	P	Fe I	153
3886.284		Fe I	4	3896.63	P	Fe I	834	3908.931		Ni I	117
3886.37		La II	40	3896.804		Ce II	188	3909.25	P	Cr II	129
3886.587		V I	64	3896.804		Y II	86	3909.313		Ce II	133
3886.789		Cr I	23	3896.977		Sm II	5	3909.664		Fe I	565
3886.825		Mo I	8	3897.075		V I	126	3909.830		Fe I	364
3886.94	P	Cr I	86	3897.290		Ti I	175	3909.894		V I	7,63
3887.051		Fe I	20	3897.449		Fe I	429	3909.910		Ba I	8
3887.157		Gd II	3	3897.581		Ti I	176	3909.933		Co I	3
3887.347		Tm I	1	3897.896		Fe I	280	3910.52	P	Fe I	562
3887.365		Ti I	176	3897.92		K II	1	3910.790		V I	42
3887.44		He II	4	3898.012		Fe I	20	3910.81		La II	43
3887.866		Nd II	31	3898.019		V I	126	3910.845		Fe I	284
3887.993		D	1	3898.120		Mg I	47	3911.00	P	Fe I	562
3888.020		Ti I	175	3898.143		V I	63	3911.169		Nd II	
3888.42		Fe I	565	3898.273		Ce II	52	3911.18	P	Fe I	564
3888.517		Fe I	45	3898.278		V I		3911.185		Ti I	175
3888.646		He I	2	3898.292		Cb II	9	3911.32		Cr II	129
3888.825		Fe I	488	3898.485		Co I	58	3911.32		S II	
3889.051		H	2	3898.487		Ti I	13	3911.362		Ti I	176
3889.141		Ca I	42	3899.037		Fe I	175	3911.58		A II	54
3889.18		C III	15	3899.09	P	S III	5	3911.699		Fe I	664
3889.33	P	Fe I	562	3899.140		V II	33	3911.810		Sc I	8
3889.330		Pr II	14	3899.27		S III	12	3911.95		Cr I	
3889.38	P	Fe I	660	3899.668		Ti I	15,175	3911.960		O II	17
3889.65	P	Ni I	180	3899.709		Fe I	4	3912.088		O II	17
3889.671		Ni I	15	3900.175		V I	126	3912.191		Ce II	192
3889.90	P	Cr II	129	3900.226		Nd II		3912.207		V I	42,43
3889.92	P	Fe I	564	3900.51		Zr I	6	3912.310		Ni I	151
3889.929		Nd II		3900.519		Fe I	565	3912.32	P	Ti II	97

I A	Type	Element	Multiplet No.
3912.424		Ce II	60
3912.589		Ti I	175
3912.886		V I	42
3912.898		Pr II	17
3912.979		Ni I	1[illegible]
3913.464		Ti II	34
3913.635		Fe I	120
3913.92		Cl II	68
3914.273		Fe I	567
3914.333		V II	33
3914.334		Ti I	15
3914.36		Zr II	134
3914.42	P	Fe I	652
3914.480		Fe II	3
3914.50	P	Fe I	660
3914.73		Fe I	662
3914.751		Ti I	14
3914.76		A II	2
3914.949		Ce II	78
3914.96		Cr I	137
3915.30	P	Cr II	128
3915.384		Ir I	6
3915.503		Co I	113
3915.843		Cr I	136
3915.879		Ti I	15
3915.94		Zr II	17
3916.05		La II	42
3916.243		Cr I	23
3916.418		V II	10
3916.476		Tm I	2
3916.508		Gd II	20
3916.61	P	Gd II	50
3916.64		Zr I	6
3916.70		Cl II	68
3916.733		Fe I	306
3916.980		Cr I	137
3917.115		Co I	113
3917.185		Fe I	20
3917.29		Eu II	10
3917.442		Sm II	9
3917.47		Hf II	76
3917.57		Cl II	68
3917.596		Cr I	137
3918.10		Hf II	7
3918.19		S II	29
3918.236		Gd II	50
3918.276		Ce II	12,248
3918.319		Fe I	124
3918.418		Fe I	364
3918.51	P	Fe II	191
3918.54	P	Cr I	136
3918.58	P	Fe I	362
3918.644		Fe I	430
3918.856		Pr II	11
3918.977		C II	4
3919.005		N II	17
3919.069		Fe I	430
3919.15	P	Cr I	136
3919.159		Cr I	23
3919.287		O II	17
3919.813		Ce II	60
3919.822		Ti I	130
3920.260		Fe I	4
3920.37		S III	8
3920.487		V I	42
3920.524		Pr II	12
3920.645		Fe I	153
3920.677		C II	4
3920.839		Fe I	567
3920.965		Nd II	
3921.02	P	Zr II	42
3921.022		Cr I	23
3921.27		Fe I	220
3921.423		Ti I	14
3921.54		La II	40
3921.731		Ce II	195
3921.80		Zr I	8
3921.905		V I	42
3922.005		Ce II	50
3922.08	P	Fe I	153
3922.09	P	Fe I	564
3922.36		Zr II	143
3922.397		Sm II	38
3922.431		V I	42
3922.54		A II	11,53
3922.63		S II	60
3922.68	P	Fe I	429
3922.72		P III	9
3922.755		Co I	32
3922.914		Fe I	4

I A	Type	Element	Multiplet No.
3923.03	P	Fe I	661
3923.109		Ce II	191
3923.246		Gd II	50
3923.39	P	Ti II	97
3923.48		He II	4
3923.483		S II	55
3923.50		Ca I	7
3923.503		Sc II	9
3923.91		Hf II	18
3923.92		Zr II	100
3924.05		S II	3[illegible]
3924.075		Mn I	
3924.18	P	Ni I	240
3924.44		Si III	
3924.527		Ti I	13
3924.544		Ce II	190
3924.65	P	Cr II	129
3924.658		V I	90
3925.09		La II	135
3925.151		Co I	131
3925.201		Fe I	567
3925.216		Sm I	2
3925.240		V I	8
3925.456		Pr II	11
3925.55	P	Fe I	660
3925.646		Fe I	364
3925.71		A II	105
3925.87		Cl III	4
3925.946		Fe I	364
3926.001		Fe I	562
3926.319		Ti I	292
3926.32		V II	165
3926.467		Mn I	44
3926.497		V II	11
3926.530		He I	58
3926.58	P	O II	11
3926.649		Cr I	313
3927.383		Ce II	43
3927.61	P	Fe I	282
3927.922		Fe I	4
3927.926		V I	90
3927.93	P	Fe I	361
3928.085		Fe I	565
3928.279		Sm II	17
3928.615		S III	8
3928.62		A II	10
3928.636		Cr I	23
3928.87		Eu II	10
3928.97	P	Ti I	175
3929.114		Fe I	280
3929.15	P	Ti II	97
3929.208		Fe I	659
3929.22		La II	27
3929.53		Zr I	7
3929.54		Zr II	142
3929.583		Tm II	11
3929.734		V II	10
3929.875		Ti I	13
3930.023		V I	63
3930.076		Co I	59
3930.299		Fe I	4
3930.31	P	Fe II	3
3930.50		Eu II	5
3930.63	P	O IV	10
3930.66		Y II	16
3930.88	P	Cr II	129
3931.088		Ce II	49
3931.122		Fe I	565
3931.24		A II	2
3931.340		V I	90
3931.369		Ce II	61
3931.938		S II	29
3931.97		Al I	18
3932.007		Ti II	34
3932.30		S II	30
3932.40		Hf II	28
3932.53		La II	123
3932.55		A II	90
3932.59	P	Fe I	153
3932.629		Fe I	280,652
3933.19		A II	53
3933.294		S II	55
3933.38		P III	9
3933.38		Sc I	8
3933.606		Fe I	488,562
3933.65		Hf II	6
3933.664		Ca II	1
3933.731		Ce II	81
3933.918		Co I	17
3934.013		V I	42

I A	Type	Element	Multiplet No.
3934.14		Zr II	7
3934.228		Ti I	15
3934.41		N III	8
3934.46	P	Ce II	3
3934.80		Zr II	43
3934.823		Nd II	
3934.824		Gd II	1
3935.141		V I	90
3935.18	P	Cr II	10
3935.31		Fe I	362
3935.64		Hf II	43
3935.717		Ba I	8
3935.764		Sm II	28
3935.77		Al I	18
3935.815		Fe I	362
3935.86	P	Fe I	564
3935.914		He I	57
3935.942		Fe II	173
3935.964		Co I	32
3936	P	C IV	2
3936.07		Zr II	42
3936.22		La II	13
3936.282		V I	42
3936.79	P	Fe I	564
3936.95		Cr II	128
3937.329		Fe I	278
3937.575		Nd II	19
3937.870		Ba I	8
3938.005		Ti I	246
3938.086		Ce II	205
3938.289		Fe II	3
3938.400		Mg I	18
3938.52		N III	8
3938.621		Al II	73
3938.76	P	Ni I	240
3938.856		Co I	171
3938.969		Fe II	190
3939.066		Al II	73
3939.49		S II	45
3939.51	P	Sc II	9
3939.85		La II	134
3940.044		Fe I	731
3940.32	P	Ti II	97
3940.338		Ce II	50
3940.882		Fe I	20
3940.887		Co I	18
3941.15		Cr I	213
3941.283		Fe I	562
3941.478		Mo II	4
3941.490		Cr I	23
3941.512		Nd II	27
3941.728		Co I	17
3941.86		Ni I	171
3941.874		Sm II	1
3941.92		Zr II	55
3942.006		V I	63
3942.14		O IV	10
3942.151		Ce II	37
3942.443		Fe I	364
3942.746		Ce II	57
3942.78		N III	8
3943.08		Eu II	22
3943.141		Ce II	113
3943.21		Cr I	135
3943.239		Sm II	9
3943.339		Fe I	72
3943.48	P	V II	11
3943.664		V I	42
3943.888		Ce II	234
3944.009		Al I	1
3944.126		Ni I	151
3944.25		Cr I	135
3944.27		A II	2
3944.748		Fe I	361
3944.890		Fe I	430
3945.048		O II	6
3945.06		S II	33
3945.08		Fe III	69
3945.10		C II	32
3945.11		Cr II	142
3945.119		Fe I	280
3945.21	P	Fe II	3
3945.27	P	V II	165
3945.29	P	O IV	10
3945.326		Co I	29
3945.36		Hf II	109
3945.495		Cr I	135
3945.968		Cr I	134
3946.00		Hf II	115
3946.10		A II	105

I A	Type	Element	Multiplet No.
3946.18	P	Ni I	1
3946.21		Y II	24
3946.35		C II	31,32
3946.406		Al II	63
3946.511		Sm II	17
3946.633		Co I	60
3946.681		Ce II	355
3946.98		S II	45
3947.002		Fe I	561
3947.10		Fe III	23,69
3947.125		Co I	8
3947.301		O I	3
3947.393		Fe I	153
3947.489		O I	3
3947.5043		A I	2
3947.533		Fe I	361,426
3947.594		O I	3
3947.60		C II	31
3947.633		Pr II	11
3947.770		Ti I	14
3947.838		Sm II	33
3948.00	P	Fe I	652
3948.105		Fe I	562
3948.113		Sm II	9
3948.15		C II	32
3948.28	P	Fe I	561
3948.48	P	Fe I	560
3948.670		Ti I	13
3948.779		Fe I	604
3948.901		Ca I	6
3948.9788		A I	2
3949.10		La II	41
3949.14		Fe I	730
3949.23	P	Fe I	153
3949.275		Tm I	2
3949.438		Pr II	16
3949.45		C II	31
3949.64		Cr I	136
3949.954		Fe I	72
3949.96		Cl II	36
3950.35		Y II	6
3950.42		S II	45
3950.78	P	Fe I	153
3951.097		Cr I	136
3951.154		Nd II	19
3951.164		Fe I	661
3951.51		P III	9
3951.59		Y II	16
3951.717		Co I	171
3951.765		Cr I	136
3951.968		V II	10
3951.987		O I	30
3952.00		Gd II	1
3952.08		C II	32
3952.195		Nd II	23
3952.326		Co I	16
3952.367		Cb II	10
3952.399		Cr I	136
3952.573		Ce II	113,177
3952.606		Fe I	278
3952.704		Fe I	362
3952.74		A II	89
3952.917		Co I	28
3952.982		O I	30
3953.056		O I	30
3953.156		Fe I	430
3953.163		Cr I	136
3953.50	P	Fe I	770
3953.516		Pr II	9
3953.525		Nd II	
3953.660		Ce II	141
3953.76	P	Fe III	69
3953.863		Fe I	362
3954.21		Cl II	82
3954.372		O II	6
3954.38		Fe III	120
3954.596		O I	30
3954.687		O I	30
3954.715		Fe I	606
3955.22	P	Fe I	527
3955.352		Fe I	562
3955.77	P	Fe I	219
3955.82	P	Zr II	17
3955.851		N II	6
3955.956		Fe I	488
3956.270		Co I	2
3956.284		Ce II	202
3956.336		Ti I	13
3956.459		Fe I	604
3956.681		Fe I	278

I A	Type	Element	Multiplet No.
3956.82	P	O IV	10
3956.901		Ce II	176
3957.027		Fe I	562
3957.053		Ca I	6
3957.62		Fe I	564
3957.64		P III	9
3957.66	P	Fe II	13
3957.672		Gd II	19
3957.928		Co I	18
3958.001		Nd II	25
3958.08		Cr I	307
3958.101		Tm II	1
3958.206		Ti I	13
3958.24		Zr II	16
3958.266		Ce II	160
3958.39		A II	65
3958.60	P	Ni I	150
3958.66		Pd I	8
3958.865		Rh I	7
3959.01	P	Sc II	49
3959.436		Gd II	49
3959.46	P	Fe I	556
3959.523		Gd II	44
3959.527		Sm II	
3960.284		Fe I	913
3960.37		V II	189
3960.763		Cr I	68
3960.895		Fe II	212
3960.914		Ce II	84
3960.997		Co I	128
3961.147		Fe I	361
3961.503		Mo II	4
3961.523		Al I	1
3961.55		S III	8
3961.59		O III	17
3962.03		La II	
3962.12		Ni I	199
3962.19		Cr I	68
3962.353		Fe I	566
3962.42	P	Fe I	560
3962.445		Pr II	28
3962.65	P	Fe I	913
3962.851		Ti I	12
3962.995		Sm II	
3963.04		La II	
3963.108		Fe I	562
3963.114		Nd II	39
3963.13		O II	43
3963.13		S II	45
3963.354		Ti I	81
3963.43	P	Fe I	654
3963.626		V I	
3963.628		Os I	3
3963.690		Cr I	38
3964.09	P	Fe II	29
3964.11		Fe III	
3964.261		Pr II	33
3964.269		Ti I	12
3964.35	P	Cr II	10
3964.522		Fe I	361
3964.57	P	Fe I	29
3964.64	P	Cr II	10
3964.727		He I	5
3964.825		Pr II	8
3964.90		Eu II	10
3964.96		Hf II	54
3965.011		Co I	31
3965.236		Co I	30
3965.263		Pr II	8
3965.446		Fe I	658
3965.511		Fe I	565
3965.83	P	Fe I	122
3966.045		Sm II	24
3966.066		Fe I	45
3966.37		Pt I	4
3966.43	P	Fe II	3
3966.532		Fe I	562,652,766
3966.573		Pr II	8
3966.630		Fe I	282,562
3966.65		Zr I	8
3966.72		A II	5
3966.824		Fe I	659
3967.048		Ce II	84
3967.423		Fe I	604
3967.441		O II	22
3967.69		Y II	82
3967.964		Fe I	561
3968.11		V II	9
3968.25		Zr I	7
3968.261		Gd II	3

I A	Type	Element	Multiplet No.
3968.36		A II	2
3968.38	P	Fe I	219
3968.43		He II	3
3968.470		Ca II	1
3968.63		C II	37
3968.78		Fe III	120
3968.995		D	1
3969.061		Cr I	38
3969.116		Co I	128
3969.261		Fe I	43
3969.293		Gd II	20
3969.38		C II	37
3969.38	P	Fe II	3
3969.40	P	Fe II	3
3969.43	P	Fe III	120
3969.628		Fe I	657
3969.748		Cr I	38
3970.07		Cr I	213
3970.074		H	1
3970.10		Ta I	1
3970.15		V II	203
3970.20		C II	38
3970.391		Fe I	488
3970.503		Ni I	151
3970.528		Sm II	1
3970.69		S II	45,54
3970.99	P	Fe I	1074
3971.062		Gd II	50
3971.164		Pr II	27
3971.255		Cr I	67
3971.325		Fe I	277
3971.397		Sm II	43
3971.684		Ce II	133
3971.754		Gd II	49
3971.82		Fe I	281
3971.98		Eu II	5
3972.130		Ti I	81
3972.164		Pr II	13
3972.171		Ni I	29
3972.44		C II	37
3972.506		Co I	171
3972.53	P	Co I	173
3972.570		Ca I	41
3972.58		K II	4
3972.688		Cr I	67
3972.920		Fe I	803
3973.144		Co I	58
3973.263		O II	6
3973.269		Nd II	19
3973.562		Ni I	31
3973.642		V II	9
3973.650		Nd II	37
3973.655		Fe I	769
3973.707		Ca I	6
3973.84		C II	37
3973.981		Gd II	50
3974.160		Fe II	29
3974.397		Fe I	564
3974.48		A II	9
3974.65	P	Fe I	526
3974.650		Ni I	198
3974.66	P	O IV	10
3974.726		Co I	18
3974.76		A II	8
3974.766		Fe I	72
3975.029		Fe II	191
3975.21		Fe I	153
3975.69	P	Ti I	186
3975.85		Fe I	977
3976.01		Cr I	38
3976.270		Sm II	9
3976.30		Cr I	280
3976.392		Fe I	487
3976.430		Sm II	33
3976.564		Fe I	655
3976.615		Fe I	729
3976.665		Cr I	38
3976.836		Nd II	21
3976.865		Fe I	431,662
3976.88		Fe III	69
3977.10		O IV	10
3977.184		Co I	113
3977.231		Os I	4
3977.30		C II	38
3977.32		Zr I	46
3977.732		V II	10
3977.743		Fe I	72
3978.28		P III	8
3978.43		Fe III	120
3978.466		Fe I	361

I A	Type	Element	Multiplet No.
3978.650		Ce II	175
3978.650		Co I	17
3978.677		Cr I	67
3978.864		Co I	173
3978.87		C II	37
3979.08		La II	140
3979.12	P	Fe I	426
3979.200		Sm II	51
3979.22		Cr I	307
3979.324		Cr I	280
3979.36		A II	90
3979.40		Hf II	97
3979.42		Fe III	120
3979.479		Nd II	57
3979.51		Cr II	183
3979.518		Co I	3
3979.65		Fe I	561
3979.798		Cr I	67
3979.86		S II	59
3980.14		Fe III	120
3980.35		C II	37
3980.56		Al III	12
3980.65		Fe I	153
3980.821		Ti I	186
3980.895		Ce II	194
3981.106		Fe I	22
3981.233		Cr I	67
3981.36		La II	139
3981.466		Ti I	188
3981.61	P	Fe II	3
3981.62	P	Fe I	428
3981.761		Ti I	12
3981.775		Fe I	278
3981.94		Cl II	
3981.998		Ti II	11
3982.01		Zr II	142
3982.063		Pr II	28
3982.355		Nd II	67
3982.478		Ti I	11
3982.583		Mn I	33
3982.59		Y II	6
3982.719		O II	6
3982.901		Ce II	172
3983.008		Gd II	49
3983.138		Sm II	38
3983.237		Cr I	213
3983.35		Fe I	485
3983.7		Al II	32,48
3983.77		S III	8
3983.83	P	Fe I	426
3983.907		Cr I	38
3983.960		Fe I	277
3984.03		Hf II	19
3984.140		Ni I	171
3984.177		Mn I	33
3984.313		Ti I	186
3984.335		V I	89
3984.338		Cr I	38
3984.46	P	Fe I	219
3984.600		V I	89
3984.675		Ce II	252
3984.76		Zr II	7
3984.858		Ru I	9
3984.93	P	Fe I	561
3985.241		Mn I	33
3985.246		Ti I	
3985.32	P	Fe I	219
3985.393		Fe I	661
3985.46		O II	22
3985.580		Ti I	188
3985.74	P	Cr II	10
3985.783		V II	202
3985.96	P	Cr II	10
3985.97		S III	8
3986.03	P	Cr II	10
3986.176		Fe I	655
3986.18	P	Fe I	560
3986.201		Mo II	4
3986.30	P	Fe I	560
3986.395		Mn I	33
3986.682		Sm II	17
3986.7533		Mg I	17
3986.826		Mn I	33
3987.090		Ni I	137
3987.098		Mn I	33
3987.117		Co I	16
3987.214		Gd II	19
3987.428		Sm II	28
3987.464		Mn I	33
3987.63	P	Ti II	11

I A	Type	Element	Multiplet No.
3987.98		Yb I	2
3988.18		A II	65
3988.51		La II	40
3988.68		Zr I	46
3988.833		V I	89
3989.06		Sc II	8
3989.24	P	Fe I	561
3989.29		Zr I	6
3989.444		Ce II	240
3989.581		Ti I	81
3989.60	P	Fe I	605
3989.718		Pr II	12
3989.758		Ti I	12
3989.803		V II	32
3989.859		Fe I	768
3989.958		Mn I	33
3989.986		Cr I	268
3990.103		Nd II	19
3990.16		Cr I	280
3990.184		Ti I	185
3990.19		Cl II	76
3990.299		Co I	58
3990.379		Fe I	527
3990.55	P	Fe I	556
3990.566		V I	89
3990.81		Fe III	46
3990.94		S II	45
3991.123		Cr I	38
3991.14		Zr II	30
3991.47		V II	10
3991.50		Cl III	7
3991.528		Co I	173
3991.673		Cr I	38
3991.684		Co I	17
3991.743		Nd II	19
3991.77		Si II	
3991.831		Co I	129
3991.965		V II	202,227
3992.014		Co I	3
3992.06		A II	2
3992.11		Cr I	38
3992.114		Ir I	5
3992.386		Ce II	134
3992.395		Fe I	604
3992.64	P	Fe I	219
3992.801		V I	89
3992.845		Cr I	67
3992.913		Ce II	226
3993.213		Gd II	1
3993.308		Sm II	4
3993.401		Ba I	8
3993.526		S II	29
3993.796		Ti I	186
3993.822		Ce II	12
3993.952		Ni I	170
3993.968		Cr I	67
3994.00	P	Fe I	560
3994.117		Fe I	526
3994.165		Gd II	49
3994.27	P	Fe I	320
3994.50		La II	78
3994.542		Co I	17
3994.56	P	Ti I	186
3994.683		Ti I	188
3994.684		Nd II	
3994.81		A II	89,101
3994.834		Pr II	11
3994.996		N II	12
3995.10		K II	1
3995.17		O IV	10
3995.199		Fe I	604
3995.306		Co I	31
3995.48	P	Sc II	49
3995.49	P	Sc II	16
3995.586		Tm II	5
3995.656		Ba I	8
3995.74		La II	27
3995.83	P	Ni I	238
3995.860		Al II	47
3995.996		Fe I	279
3996.075		Al II	47
3996.159		Al II	47
3996.182	Forb	Al II	47
3996.26	P	Fe I	561
3996.28	P	Fe I	427
3996.320		Gd II	
3996.323		Al II	47
3996.36	P	Fe II	190
3996.381		Al II	47
3996.518		Tm II	

I A	Type	Element	Multiplet No.
3996.607		Sc I	7
3996.79	P	Fe I	1074
3996.968		Fe I	945
3997.054		Pr II	9
3997.126		V II	9
3997.17		P III	9
3997.394		Fe I	278
3997.43		Y II	24
3997.48	P	Fe I	563
3997.49	P	Fe I	556
3997.764		Gd II	67
3997.901		Co I	32
3997.97		S III	
3998.00		Si II	
3998.054		Fe I	276
3998.46	P	Fe I	606
3998.51		Hf II	59
3998.554		Co I	33
3998.635		Ti I	12
3998.69		N III	16
3998.730		V I	89
3998.79		S II	59
3998.85		Cr I	307
3998.98		Zr II	16
3999.00	P	Cr II	10
3999.07	P	Cr II	10
3999.195		V II	202
3999.242		Ce II	57
3999.336		Ti I	188
3999.679		Cr I	
3999.92		C III	
3999.98		N I	
4000.02		Fe I	360
4000.266		Fe I	556
4000.466		Fe I	426
4000.493		Nd II	64
4000.59		Cr I	295
4001.049		Ce II	193
4001.17		V II	202
4001.24		K II	6
4001.257		Gd II	49
4001.444		Cr I	268
4001.56		C III	
4001.666		Fe I	72
4002.073		Fe II	29
4002.466		Ti I	188
4002.48		Cr II	166
4002.549		Fe II	190
4002.55		Zr I	46
4002.665		Fe I	320,655
4002.940		V II	9
4002.95		Zr II	142
4003.33		Cr II	194
4003.41		Fe III	15
4003.596		Co I	130
4003.64		N III	16
4003.764		Fe I	728
4003.771		Ce II	188
4003.789		Ti I	188
4003.850		Gd II	104
4003.89		S II	45
4003.921		Cr I	268
4004.010		Nd II	
4004.15	P	Fe II	127
4004.832		Fe I	601
4004.976		Fe I	486,557
4005.04	P	Fe III	45
4005.246		Fe I	43
4005.38	P	Fe I	123
4005.49	P	Fe I	219
4005.64	P	Fe III	45
4005.7		Al II	89
4005.712		V II	32
4005.952		Ti I	187
4006.136		Ni I	
4006.16	P	Fe I	564
4006.314		Fe I	603
4006.631		Fe I	488
4006.768		Fe I	320
4007.04	P	Cr II	194
4007.195		Ti I	187
4007.233		Fe I	119
4007.277		Fe I	277
4007.36		Hf II	88
4007.435		Nd II	
4007.589		Ce II	221
4007.64		La II	
4007.66		A II	65
4007.72	P	Fe II	189
4007.78		S II	29

I A	Type	Element	Multiplet No.
4007.81	P Forb	He I	56
4008.046		Ti I	187
4008.17		V II	32
4008.41	P	Sc II	16
4008.46		Hf II	54
4008.60	P	Sc II	16
4008.714		Pr II	28
4008.769		W I	6
4008.81		Fe III	
4008.913		Gd II	
4008.926		Ti I	12
4009.270		He I	55
4009.39		S II	55
4009.54	P	Fe I	556
4009.58		Al II	37
4009.653		Ti I	11
4009.714		Fe I	72
4009.90		C II	27
4009.984		Ni I	150
4010.18		Fe I	915
4010.77		Fe I	219,320
4011.089		Co I	2
4011.23		A II	53
4011.416		Fe I	218
4011.534		Ti I	10
4011.69		Eu II	22
4011.71		Fe I	153
4011.89	P	Fe I	424
4012.10		K II	2
4012.16		Fe I	601
4012.250		Nd II	10
4012.372		Ti II	11
4012.389		Ce II	206
4012.467		Fe II	126
4012.49		Cr I	268
4012.50		Cr II	183
4012.51		Mo I	12
4012.704		Nd II	
4012.786		Ti I	186
4013.24	P	Ti I	186
4013.587		Ti I	187
4013.641		Fe I	557
4013.798		Fe I	485
4013.798		Gd II	
4013.80		Mg II	22
4013.822		Fe I	486
4013.87		A II	2
4013.89	P	Fe I	120
4013.942		Co I	58
4013.953		Gd II	17
4014.28		Fe I	426,427
4014.489		Sc II	8
4014.534		Fe I	802
4014.668		Cr I	268
4014.899		Ce II	157
4015.20	P	Fe II	142
4015.377		Ti I	185
4015.389		Pr II	32
4015.50		Ni II	12
4015.877		Ce II	256
4016.264		Ti I	186
4016.432		Fe I	560
4016.54		Fe I	277
4016.81	P	Fe I	428
4016.82		V II	202
4016.943		Ti I	208
4017.096		Fe I	279
4017.156		Fe I	527
4017.27		C II	27
4017.29		V II	216
4017.56		Ni I	171
4017.58		Eu II	10
4017.596		Ce II	163
4017.771		Ti I	185
4017.96		Cr II	166
4018.102		Mn I	5
4018.282		Fe I	560
4018.38		Zr II	54
4018.49	P	Fe II	13
4018.50		Cl III	7
4018.826		Nd II	19
4019.05		Fe I	219
4019.05		V II	201
4019.055		Ni I	72
4019.137		Th II	3
4019.288		Co I	16
4019.30	P	Co I	18
4019.45		P II	30
4019.982		Sm II	16
4020.05	P	Fe I	556

I A	Type	Element	Multiplet No.
4020.06		Cl II	76
4020.25		Hf II	40
4020.399		Sc I	7
4020.490		Fe I	913
4020.872		Nd II	19
4020.898		Co I	16
4021.13		C II	27
4021.330		Nd II	36
4021.622		Fe I	120,557
4021.75	P	Fe III	45
4021.812		Ti I	185
4021.869		Fe I	278
4021.925		V I	96
4022.052		Ni I	238,241
4022.263		Cr I	268
4022.333		Gd II	
4022.36		Cr II	183
4022.36		Fe III	45
4022.45		Fe I	173
4022.744		Fe I	556,654
4023.002		Nd II	
4023.231		Sm II	4
4023.388		V II	32
4023.399		Co I	59
4023.58		La II	79
4023.688		Sc I	7
4023.739		Cr I	268
4023.986		He I	54
4023.99		Ni I	170
4023.99		Zr I	46
4024.04		O II	99
4024.109		Fe I	277
4024.45		Zr II	54
4024.491		Ce II	49
4024.552		Fe II	127
4024.573		Ti I	12
4024.727		F II	2
4024.735		Fe I	560
4024.785		Nd II	24
4024.92		Zr I	46
4025.010		F II	2
4025.012		Cr I	37
4025.07		Fe III	53
4025.07	P	Ti I	208
4025.114		Ni I	240
4025.136		Ti II	11
4025.44		Cr I	37
4025.44		Ni I	117
4025.49	P Forb	He I	19
4025.495		F II	2
4025.60		He II	3
4025.67	P	Fe III	45
4025.87		La II	42
4026.080		N II	40
4026.166		Cr I	37
4026.189		He I	18
4026.362		He I	18
4026.40		O II	51
4026.435		Mn I	
4026.5		Al II	24
4026.539		Ti I	185
4027.032		Co I	3
4027.103		Cr I	37
4027.20		Zr I	46
4027.30		V II	201
4027.426		Ti I	
4028.332		Ti II	87
4028.411		Ce II	47
4028.791		S II	45
4029.16		Hf II	23
4029.32	P	Ni I	170
4029.64	P	Ti II	87
4029.640		Fe I	556,563
4029.68		Zr II	41
4030.03		Zr I	46
4030.194		Fe I	72
4030.28	P	Cr II	19
4030.470		Nd II	32
4030.499		Fe I	560
4030.512		Ti I	185
4030.755		Mn I	2
4030.867		Al II	72
4030.90	P	Fe I	943
4031.130		Cr I	268
4031.135		Al II	72
4031.210		Al II	72
4031.243		Fe I	186
4031.339		Ce II	108
4031.35		Zr II	42
4031.41		A II	65

I A	Type	Element	Multiplet No.
4031.456		Fe II	151
4031.633		Al II	72
4031.68		La II	40
4031.73	P	Fe I	427
4031.753		Ti I	185
4031.807		Nd II	
4031.968		Fe I	655
4032.46		Fe I	320
4032.628		Ti I	297
4032.636		Fe I	44
4032.812		S II	59
4032.946		Fe II	126
4032.975		Ga I	1
4033.073		Mn I	2
4033.18		O II	50
4033.19	P	Fe I	218
4033.263		Cr I	36
4033.55		Sb I	1
4033.68		P II	17
4033.83		A II	52
4033.857		Pr II	19
4033.883		Ti I	208
4033.95		Cr I	36
4034.012		Nd II	23
4034.10		Zr II	42
4034.490		Mn I	2
4034.84		Zr II	70
4034.884		Ti I	208
4035.087		N II	39
4035.09		O II	51
4035.110		Sm II	33
4035.25	P	Fe I	831
4035.47		A II	33
4035.54	P	Fe II	22
4035.54		Fe III	119
4035.542		Co I	173
4035.631		V II	32
4035.728		Mn I	5
4035.82	P	Fe III	45
4035.828		Ti I	208
4035.96	P	Ni I	150
4035.98	P	Fe I	426
4036.23		P II	16
4036.37	P	Fe I	279
4036.53		Cl II	76
4036.59		La II	59
4036.779		V II	9
4036.80		Cr I	36
4037.294		Cr I	36
4037.332		Gd II	49
4037.665		Ce II	218
4037.725		Fe I	118
4037.897		Gd II	49
4038.03		Cr II	194
4038.124		Nd II	31
4038.27	P	Ni I	150
4038.545		V II	155
4038.622		Fe I	600,728
4038.82		A II	2
4039.100		Cr I	251
4039.12		Fe III	45
4039.30		Cr I	251
4039.302		Al II	62
4039.357		Pr II	15
4039.397		AI II	62
4039.574		V II	32
4039.83		Y I	5
4039.94		Fe I	276
4040.24		Zr II	54
4040.310		Ti I	185
4040.650		Fe I	655
4040.762		Ce II	138
4040.796		Nd II	30
4041.288		Fe I	603,654
4041.31		O II	50
4041.321		N II	39
4041.361		Mn I	5
4041.64	P	Fe II	172
4041.675		Sm II	22
4041.79		Cr I	36
4041.84	P	Fe II	13
4041.911		Fe I	602
4042.135		Ce II	252
4042.20		A II	28
4042.246		Cr I	36
4042.584		Ce II	140
4042.635		V I	96
4042.723		Sm II	4
4042.75	P	Fe I	556
4042.905		Sm II	9

I A	Type	Element	Multiplet No.
4042.91		A II	33
4042.91		La II	66
4043.502		Cu II	3
4043.537		N II	39
4043.57		Zr I	32
4043.596		Nd II	34
4043.69	P	Fe I	122
4043.696		Cr I	306
4043.775		Ti I	208
4043.901		Fe I	276,557
4043.98	P	Fe I	559
4044.01	P	Fe II	172
4044.145		K I	3
4044.4182		A I	4
4044.49	P	Fe I	1073
4044.49		P II	30
4044.57		Zr I	46
4044.614		Fe I	359
4044.64	P	Fe I	484
4044.75		N II	39
4044.818		Pr II	8
4044.96		O II	51
4045.133		Mn I	48
4045.139		Fe I	125
4045.148		Gd II	49
4045.16	P Forb	He I	17
4045.206		Mn I	
4045.386		Co I	31
4045.59	P	Fe I	559
4045.63		Zr II	30
4045.815		Fe I	43
4046.07	P	Fe I	557
4046.15		O II	50
4046.19		Cr I	36
4046.269		V II	177
4046.341		Ce II	81
4046.46	P	Fe I	1075
4046.557		Hg I	1
4046.629		Fe I	487
4046.760		Cr I	36
4046.81	P	Fe II	126
4047.160		Sm II	16
4047.214		K I	3
4047.315		Fe I	117,853
4047.51		A II	66
4047.64		Y I	6
4047.792		Sc I	7
4047.88	P	Y II	6
4047.948		W I	4
4047.96		Hf II	104
4048.02	P	Cr II	182
4048.22		O II	50
4048.56	P	Cr I	251
4048.68		Zr II	43
4048.755		Mn I	5
4048.780		Cr I	251
4048.831		Fe II	172
4048.999		Mn I	48
4049.03		V II	215
4049.14		Cr II	193
4049.336		Fe I	218
4049.399		Ti I	185
4049.429		Gd II	50
4049.44		Hf II	53
4049.71	P	Ni I	169
4049.783		Cr I	251
4049.858		Gd II	
4050.02		Cr I	36
4050.08		La II	85
4050.11		S II	45
4050.32		Zr II	43
4050.67		Hf II	59
4050.963		V I	121
4051.06		V II	32
4051.08		Fe II	98
4051.145		Nd II	66
4051.18	P	Ni I	239
4051.21	P	Fe II	172
4051.34		V II	215
4051.352		V I	121
4051.923		Fe I	700
4051.97		Cr II	19
4052.22		Cl II	61
4052.312		Fe I	00,852
4052.466		Fe I	563
4052.472		Mn I	48
4052.664		Fe I	524
4052.72	P	Fe I	557
4052.930		Ti I	208
4052.94		A II	101

I A	Type	Element	Multiplet No.
4053.28		Fe III	119
4053.294		Gd II	
4053.45		Cr II	19
4053.506		Ce II	36
4053.56		A II	53
4053.59		Fe III	98
4053.59		V II	215
4053.642		Gd I	5
4053.814		Ti II	87
4053.82		Fe I	485
4054.10		O II	50,98
4054.11		Cr II	19
4054.18		Fe I	557
4054.55		O II	98
4054.555		Sc I	6
4054.618		Co I	2
4054.833		Fe I	698
4054.845		Pr II	30
4054.883		Fe I	698
4054.991		Ce II	82
4055.011		Ti I	80
4055.03		Zr I	46
4055.046		Fe I	218
4055.214		Mn I	48
4055.543		Mn I	5
4055.98		Fe I	914
4056.027		Mo I	12
4056.06		C III	24
4056.07		Cr II	182
4056.212		Ti II	11
4056.270		V II	14
4056.53		Fe I	320
4056.543		Pr II	26
4056.793		Cr I	306
4056.8		Al II	88
4057.00		N II	39
4057.074		V I	121
4057.19		Cr I	156
4057.195		Co I	3
4057.347		Ni I	89
4057.356		Fe I	277
4057.39		P III	1
4057.457		Fe II	212
4057.5052		Mg I	16
4057.51		Fe III	33
4057.612		Ti I	254
4057.66	P	Fe I	729
4057.72		A II	9
4057.80		N IV	3
4057.81		Cr I	251
4057.812		Pb I	1
4057.950		Mn I	29
4058.08		La II	54
4058.139		Ti I	254
4058.183		Co I	16
4058.219		Gd I	5
4058.227		Fe I	558
4058.46	P	Fe I	914
4058.600		Co I	58
4058.7		S II	54
4058.766		Fe I	120
4058.77		S II	52
4058.772		Cr I	251
4058.912		Ca I	40
4058.930		Mn I	5
4058.933		Cb I	1
4059.07		Cl III	7
4059.27		P III	1
4059.321		Co I	2
4059.370		Gd II	118
4059.392		Mn I	29
4059.726		Fe I	767
4059.961		Nd II	63
4060.09	P	Ti I	254
4060.263		Ti I	80
4060.58		O II	97
4060.62		Cr I	156
4060.98		O II	97
4061.085		Nd II	10
4061.3		Sc III	
4061.742		Mn I	29
4061.77	P	Cr II	19
4061.787		Fe II	189
4062.08		P II	17
4062.09		Mo I	12
4062.223		Ce II	34
4062.446		Fe I	359
4062.590		Gd II	
4062.817		Pr II	26
4062.90		Ne II	53

I A	Type	Element	Multiplet No.
4062.90		O II	50
4063.174		Co I	18
4063.286		Fe I	698
4063.390		Gd II	
4063.528		Mn I	5
4063.59		Gd II	48
4063.597		Fe I	43
4063.931		V I	121
4063.94	P	Cr II	19
4064.07	P	Fe I	423
4064.16		Zr I	46
4064.2		C I	7
4064.203		Ti I	80
4064.22	P	Ti I	254
4064.350		Ti II	106
4064.374		Ni I	179
4064.45		S III	
4064.46		Fe I	44
4064.576		Sm II	24,33
4064.64		P II	16
4064.75	P	Fe II	39
4064.99		Y II	24
4065.070		V II	215
4065.09		Au I	3
4065.094		Ti I	80
4065.1		C I	7
4065.14		A II	65
4065.402		Fe I	698
4065.595		Ti I	207
4065.716		Cr I	279
4066.02	P	Fe I	695
4066.16	P	Cr II	182
4066.328		Fe II	214
4066.365		Co I	30
4066.597		Fe I	424
4066.737		Sm II	28
4066.938		Cr I	66
4066.979		Fe I	358
4067.03		V II	9
4067.05	P	Cr II	193
4067.051		Ni II	11
4067.275		Fe I	217
4067.279		Ce II	22
4067.39		La II	26
4067.49	P	Fe I	422
4067.60	P	Fe I	655
4067.85	P	Fe I	1103
4067.87		C III	16
4067.984		Fe I	559
4068.003		Mn I	5
4068.144		Ti I	207
4068.334		Sm II	42
4068.541		Co I	58
4068.661		Ti I	254
4068.7		Sc III	
4068.836		Ce II	82
4068.97		C III	16
4068.981		Ti I	299
4069.08		Fe I	557
4069.267		Nd II	20
4069.636		O II	10
4069.883		Fe II	188
4069.897		O II	10
4070.03	P	Fe II	22
4070.094		Ce II	
4070.279		Mn I	5
4070.288		Gd II	49
4070.30		C III	16
4070.390		Gd II	17
4070.45	P	Fe I	525
4070.766		Fe I	558
4070.90		Cr II	193
4071.0	P	Ni II	11
4071.000		Cr I	306
4071.09		Zr II	54
4071.20		O II	49
4071.211		Ti I	254
4071.22		Hf II	74
4071.469		Ti I	254
4071.52		Fe I	218
4071.541		V I	96
4071.740		Fe I	43
4071.814		Ce II	81
4072.01		A II	33
4072.13		P II	16
4072.164		O II	10
4072.40		A II	41,52
4072.518		Fe I	698
4072.56		Cr II	26
4072.71		Zr I	46

I A	Type	Element	Multiplet No.
4072.913		Ni I	197
4072.917		Ce II	109
4073.195		Gd II	34
4073.055		N II	38
4073.477		Ce II	4
4073.759		Gd II	44
4073.760		Fe I	558
4073.90		O III	23
4074.356		Ti I	254
4074.374		W I	6
4074.53		C II	36
4074.70	P	Fe I	912
4074.794		Fe I	524
4074.89		C II	36
4074.897		Ni I	28
4075.116		Nd II	62
4075.272		Nd II	19
4075.45		Si II	
4075.63	P	Cr II	19
4075.66		V II	14
4075.714		Ce II	57
4075.845		Sm II	51
4075.853		Ce II	206
4075.868		O II	10
4075.92		Cr I	66
4075.95	P	Fe II	21
4076.00		C II	36
4076.061		Cr I	279
4076.124		Co I	16
4076.232		Fe I	486
4076.370		Ti I	9
4076.498		Fe I	218
4076.636		Fe I	558
4076.64		A II	52
4076.71		La II	11
4076.78		Si II	
4076.810		Fe I	557
4076.83		N II	38
4076.87		Cr II	19
4076.89	P	Fe I	559
4076.96		A II	64
4077.05		Zr II	54
4077.089		Cr I	66
4077.148		Ti I	207
4077.35		La II	41
4077.38		Y I	7
4077.470		Ce II	60
4077.50		Cr II	19
4077.677		Cr I	279
4077.714		Sr II	1
4078.321		Ce II	19
4078.365		Fe I	217
4078.444		Gd II	15
4078.471		Ti I	80
4078.700		Gd I	5
4078.862		O II	10
4079.18	P	Fe I	700
4079.241		Mn I	5
4079.422		Mn I	5
4079.60		A II	33
4079.708		Ti I	207
4079.726		Cb I	1
4079.848		Fe I	359
4079.88		Cl II	61
4080.04		P III	1
4080.08	P	Fe I	944
4080.221		Cr I	66
4080.226		Fe I	558
4080.227		Nd II	18
4080.435		Ce II	36
4080.44		Hf II	6
4080.44		V II	214
4080.48		Ne II	53
4080.56		Cr I	156
4080.600		Ru I	7
4080.67		A II	
4080.886		Fe I	557
4081.018		Pr II	14
4081.10		O III	23
4081.19		Fe III	119
4081.21		Cr II	165
4081.22		Zr I	46
4081.222		Ce II	4
4081.42	P	Fe II	188
4081.737		Cr I	66
4081.74		Ca III	4
4082.125		Fe I	698
4082.280		N II	38
4082.30		Cr II	165
4082.396		Sc I	6

I A	Type	Element	Multiplet No.
4082.40		A II	8
4082.44		Fe I	906
4082.456		Ti I	80
4082.593		Co I	16
4082.600		Sm II	54
4082.85		N II	38
4082.944		Mn I	5
4083.233		Ce II	60
4083.554		Fe I	117
4083.584		Sm II	24
4083.628		Mn I	5
4083.67	P	Mn II	2
4083.71	P	Fe I	1103
4083.71		Y I	6
4083.780		Fe I	697
4083.907		O II	49
4084.17	P	Fe I	557
4084.391		Mo I	12
4084.498		Fe I	698
4084.58	P	Fe II	151
4084.66		O II	21
4085.011		Fe I	358
4085.124		O II	10
4085.232		Ce II	172
4085.26	P	Fe I	276
4085.312		Fe I	559
4085.38		Eu II	10
4085.38	P	Fe I	486
4085.564		Gd II	50
4085.67		V II	214
4085.68		Zr II	54
4085.815		Nd II	16
4085.98		Fe I	1073
4086.14		Cr II	26
4086.300		Co I	58
4086.69		Ne II	54
4086.72		La II	10
4087.099		Fe I	694
4087.16		O II	48
4087.27	P	Fe II	28
4087.297		Ce II	59
4087.35		N II	37
4087.60		Na II	4
4087.63		Cr II	19
4087.79	P	Fe I	832
4088.291		Co I	2
4088.567		Fe I	906
4088.75	P	Fe II	39
4088.863		Si IV	1
4088.90		Cr II	19
4089.225		Fe I	422
4089.295		O II	48
4089.49		Cr II	164
4089.63		Cr I	260
4090.085		Fe I	700
4090.305		Cr I	66
4090.34	P	Fe I	44
4090.52		Zr II	29
4090.579		V I	41
4090.75	P	Fe I	943
4090.947		Ce II	174
4090.984		Fe I	695
4091.53		P II	17
4091.561		Fe I	357
4091.945		V I	52
4092.174		Cr I	180
4092.266		Sm II	1
4092.386		Co I	29
4092.407		V I	52
4092.512		Fe I	18
4092.633		Ca I	25
4092.694		V I	27
4092.848		Co I	59
4092.940		O II	10
4093.06		Cr I	260
4093.16		Hf II	6
4093.497		V I	52
4093.62	P	Ni I	1
4093.90		Mg II	29
4093.955		Ce II	160
4094.18		O II	10
4094.188		Tm I	
4094.478		Gd II	48
4094.930		Ca I	25
4095.17		S III	
4095.27	P	Fe I	1075
4095.486		V I	41
4095.63	P	Fe I	851
4095.63		O II	48
4095.92	P	N II	38

I A	Type	Element	Multiplet No.
4095.975		Fe I	217
4096.118		Fe I	911
4096.18		O II	48
4096.21	P	Fe I	18
4096.47		A II	65
4096.543		O II	21
4096.63		Zr II	15
4096.822		Pr II	29
4096.96	P	Fe I	173
4097.02	P	Fe I	700
4097.099		Fe I	558
4097.12		Ca II	17
4097.15		A II	100
4097.21		Hf II	17
4097.260		O II	20,48
4097.31		N III	1
4097.65		Cr I	97
4097.791		Ru I	9
4097.96		Cr I	97
4098.18		Cr I	97
4098.183		Fe I	558
4098.27		O II	46
4098.44		Cr II	165
4098.533		Ca I	25
4098.54		Fe III	101
4098.606		Gd II	49
4098.73		La II	138
4098.77		Ne II	53
4098.900		Gd II	49
4098.981		Ce II	91
4099.016		Cr I	108
4099.08		Fe I	600,651
4099.166		Ti I	207
4099.25		S III	11
4099.44		S III	
4099.47		A II	79
4099.54		La II	78
4099.77		Mg I	46
4099.796		V I	27
4099.94		N I	10
4099.99	P	Fe I	698
4100.04		He II	3
4100.17		Fe I	
4100.240		Nd II	57
4100.30		Ne II	54
4100.35		Fe I	320
4100.35	P	Fe I	1103
4100.52		Fe III	107
4100.621		D	1
4100.745		Fe I	18
4100.746		Pr II	4
4100.91	P	Fe I	173
4100.918		Cb I	1
4101.00		V II	176
4101.163		Cr I	108
4101.272		Fe I	698
4101.684		Fe I	120
4101.737		H	1
4101.764		In I	1
4101.772		Ce II	5
4102.158		Mo I	12
4102.159		V I	41
4102.38		Y I	7
4102.713		W I	2
4102.74	P	Ni I	255
4102.926		Si I	2
4103.017		O II	20
4103.085		F II	4
4103.37		N III	1
4103.525		F II	4
4103.61	P	Fe I	831
4103.62	P	Fe I	650
4103.724		F II	4
4103.85		Cr I	180
4103.871		F II	4
4103.91		A II	52,64
4104.132		Fe I	356,558
4104.18	P	Fe II	39
4104.23		Cl III	7
4104.46	P	Fe I	422
4104.743		O II	20
4104.77	P	Fe I	320
4104.778		V I	112
4104.867		Cr I	108
4104.97		Fe I	694
4104.996		Ce II	156
4105.000		O II	20
4105.06	P	Fe I	700
4105.167		V I	27
4105.365		Mn I	47

I A	Type	Element	Multiplet No.
4105.843		Tm I	
4106.03		O II	10
4106.05		Cr I	180
4106.134		Ce II	160
4106.266		Fe I	217
4106.437		Fe I	697
4106.582		Nd II	57
4106.71		Cr I	260
4106.83		Cl III	7
4106.881		Ce II	139
4107.07		O II	47
4107.387		Sm II	50
4107.426		Ce II	138
4107.477		Mo I	12
4107.487		V I	52
4107.492		Fe I	354
4107.75	P	Fe I	831
4108.13	P	Fe I	559
4108.31	P	Fe I	833
4108.39		Zr I	32
4108.400		Cr I	65
4108.401		Gd II	117
4108.488		Co I	2
4108.554		Ca I	39
4108.75		O II	48
4109.070		Fe I	558
4109.073		Nd II	17
4109.173		F II	5
4109.19		P II	30
4109.405		Sm II	28
4109.455		Nd II	10
4109.54		Mg II	21
4109.584		Cr I	65
4109.706		Co I	1
4109.786		V I	27
4109.808		Fe I	357
4109.81	P	V I	41
4109.83		Ca II	17
4109.95		Fe III	
4109.98		Cr I	260
4109.98		N I	10
4110.00		N II	44
4110.05		Zr II	30
4110.20		O II	37
4110.33		Ca II	17
4110.381		Ce II	28
4110.472		Nd II	15
4110.532		Co I	29
4110.795		O II	20
4110.87		Cr I	97
4110.903		Mn I	37,47
4111.01		Cr II	18,26
4111.06	P	Fe I	689
4111.36		Cr I	97
4111.394		Ce II	
4111.438		Gd II	
4111.56		S III	
4111.67		Cr I	97
4111.785		V I	27
4111.902		Fe II	188
4112.018		Os I	5
4112.029		O II	21
4112.04		Eu II	10
4112.09	P	Fe I	766
4112.17	P	Fe I	275
4112.35		Fe I	695
4112.59		Cr II	18
4112.708		Ti I	9
4112.83		A II	8
4112.972		Fe I	1103
4113.210		Zn I	9
4113.23		Fe III	
4113.24		Cr II	18
4113.28		La II	166
4113.45		Fe III	
4113.518		V I	52
4113.58		Hf II	24
4113.726		Ce II	137
4113.82		O II	37
4113.826		Nd II	25
4113.876		Mn I	47
4113.902		Sm II	16
4114.00		N I	10
4114.449		Fe I	357
4114.52		A II	124
4114.95		Na II	20
4114.957		Fe I	695
4114.99		K II	2
4115.185		V I	27
4115.374		Ce II	22
4115.376		Gd II	117
4115.89	P	Fe I	910
4115.982		Ni I	255
4116.104		Si IV	1
4116.39		A II	124
4116.470		V I	27
4116.547		F II	5
4116.60	P	V I	27
4116.66		Cr II	181
4116.703		V I	27
4116.97		Fe I	558
4117.013		Ce II	35
4117.09		P II	17
4117.288		Ce II	77
4117.32		Fe I	484
4117.71		Fe I	833
4117.872		Fe I	700,1103
4118.10		Ne II	54
4118.144		Ce II	11
4118.182		V I	112
4118.45	P	Cr I	85
4118.481		Pr II	8
4118.549		Fe I	801
4118.551		Sm II	54
4118.643		V I	41
4118.774		Co I	28
4118.904		Fe I	559
4119.015		Ce II	89
4119.219		F II	5
4119.221		O II	20
4119.44		Cr I	65
4119.457		V I	41
4119.53	P	Fe II	21
4119.66	P	Fe I	320
4119.784		Ce II	22
4119.877		Ce II	83
4120	P	O V	4
4120.037		Ti I	253
4120.211		Fe I	423
4120.279		O II	20
4120.538		V I	41
4120.554		O II	20
4120.613		Cr I	65
4120.654		Nd II	57
4120.78		P II	17
4120.812		He I	16
4120.829		Ce II	112
4120.97		Fe III	118
4120.993		He I	16
4121.0		S II	2
4121.31		Fe III	
4121.318		Co I	28
4121.45		Zr I	32
4121.48		O II	19
4121.637		Ti I	
4121.682		Rh I	9
4121.7	P	O V	11
4121.806		Fe I	356
4121.817		Cr I	108
4121.95		B II	2
4122.00	P	Fe I	765
4122.05		C III	17
4122.06		Fe III	118
4122.143		Ti I	296
4122.162		Cr I	65
4122.522		Fe I	356
4122.638		Fe II	28
4122.757		Mn I	47
4122.98		Fe III	118
4123	P	O V	4
4123.069		Na II	19
4123.188		V I	112
4123.23		La II	41
4123.230		Ce II	162
4123.279		Mn I	47
4123.287		Ti I	302
4123.38		Zr II	54
4123.387		Cr I	108
4123.488		Ce II	22
4123.54		Hf II	95
4123.543		Mn I	37
4123.559		Ti I	296
4123.566		V I	27
4123.748		Fe I	217,422
4123.812		Cb I	1
4123.872		Ce II	60
4123.881		Nd II	65
4123.90		O V	4
4123.956		Sm II	46
4124.00		Cl II	60
4124.072		V I	52
4124.081		N II	65
4124.09		A II	41
4124.73		Lu I	3
4124.793		Fe II	22
4124.91		Y II	14
4125.10		Hf II	94
4125.23	P	Fe I	173
4125.4		S III	11
4125.622		Fe I	1103
4125.776		Ce II	126
4125.884		Fe I	354
4126.099		Cr I	65
4126.192		Fe I	695
4126.521		Cr I	35
4126.88		Fe I	354
4126.925		Cr I	
4127.08		Cr II	181
4127.09		A II	41
4127.09	P	Ti I	114
4127.302		Cr I	35
4127.367		Ce II	4
4127.49		P II	16
4127.531		Ti I	296
4127.54		S III	
4127.57		Y II	15
4127.612		Fe I	357
4127.643		Cr I	65
4127.721		Gd II	117
4127.80		Hf II	41
4127.807		Fe I	558,727
4128.053		Si II	3
4128.067		Ce II	136
4128.071		V I	27
4128.14		Mn II	2
4128.31		Y I	5
4128.65		A II	
4128.735		Fe II	27
4128.858		V I	112
4128.87	P	Mn II	2
4128.870		Rh I	8
4129.166		Ti I	
4129.176		Ce II	227
4129.21		Cr I	97
4129.22		Fe I	698
4129.231		Sm II	24
4129.34		O II	19
4129.46	P	Fe I	695
4129.70		A II	77
4129.73		Eu II	1
4129.96	P	Cr I	97
4130.035		Fe I	44,486
4130.372		Gd II	19,49
4130.47	P	Cr I	97
4130.538		Co I	16
4130.648		Ba II	4
4130.706		Ce II	209
4130.77		P II	17
4130.86		Cl II	60
4130.884		Si II	3
4131.099		Ce II	112
4131.17	P	Fe II	188
4131.244		Ti I	253
4131.31		Zr II	54
4131.360		Cr I	261
4131.430		Mn I	37
4131.73		A II	32
4131.74		La II	167
4131.75	P	Fe I	1075
4131.94	P	Fe I	695
4131.97	P	Fe I	558
4132.017		V I	27
4132.060		Fe I	43
4132.155		Co I	30
4132.275		Gd II	49
4132.41		Cr II	26
4132.48		Cl II	29
4132.50		La II	150
4132.54	P	Fe I	1103
4132.806		O II	19
4132.903		Fe I	357
4132.94	P	Fe I	44
4133.006		Sc I	20
4133.33		La II	
4133.361		Nd II	19
4133.65		Ne II	53
4133.66		Cl II	60
4133.669		N II	65
4133.800		Ce II	4
4133.869		Fe I	698

I A	Type	Element	Multiplet No.
4134.19	P	Fe I	217
4134.343		Fe I	3
4134.433		Fe I	482,697
4134.488		V I	27
4134.681		Fe I	357
4134.72		K II	1
4135.325		Nd II	
4135.443		Ce II	188
4135.68		Zr I	50
4135.77	P	Cr II	163
4135.77		Fe I	1073
4135.784		Os I	3
4135.9	P	O V	11
4136.386		V I	26
4136.512		Fe I	694
4136.894		Ti I	221
4137.002		Fe I	726
4137.090		Cb I	1
4137.104		Gd II	
4137.257		Mn I	37
4137.284		Ti I	253
4137.42	P	Fe I	1103
4137.63		N I	6
4137.646		Ce II	2
4137.93		Fe III	118
4137.97	P	Fe I	320
4138.21	P	Fe II	150
4138.40	P	Fe II	39
4138.52		Ni I	237
4138.84		Fe I	117
4139.37		Fe III	118
4139.452		Co I	94
4139.48		Ti I	221
4139.702		Cb I	1
4139.933		Fe I	18
4140.24	P	Fe I	418
4140.304		Sc I	20
4140.42	P	Ti I	221
4140.441		Fe I	694,695
4140.450		Gd II	48
4140.51		Fe III	118
4140.74		O II	19
4141.017		Gd II	117
4141.25	Forb	Al III	17
4141.257		Pr II	10
4141.352		Fe I	480
4141.73		La II	40
4141.84		Hf II	87
4141.862		Fe I	422
4141.96		O II	106
4142.08		O II	106
4142.15		Al III	16
4142.184		Ni I	212
4142.193		Cr I	305
4142.24		O II	106
4142.291		S II	44
4142.320		Ni I	
4142.398		Ce II	10
4142.47		Cr I	179
4142.480		Ti I	296
4142.628		Fe I	1103
4142.66		V I	26
4142.86		Y I	5
4142.90		V II	226
4143.048		Ti I	253
4143.07	P	Fe II	188
4143.136		Pr II	4
4143.280		Ti I	253
4143.418		Fe I	523
4143.42	P	N I	6
4143.50	P	Fe I	697
4143.52		O II	106
4143.759		He I	53
4143.77		La II	54
4143.77		O II	106
4143.83	P	Fe I	354
4143.87		Fe III	
4143.871		Fe I	43
4144.164		Ru I	7
4144.492		Ce II	3
4144.553		Nd II	61
4144.995		Ce II	9
4145.100		S II	44
4145.209		Fe I	274
4145.74		Fe III	
4145.764		N II	65
4145.77		Cr II	162
4145.90		O II	106
4146.071		Fe I	422
4146.09		O II	106
4146.20		Cr I	260
4146.234		Ce II	203
4146.47		Cr I	108
4146.6[illegible]5		Cr I	107
4146.94		S II	65
4147.09		Cl II	60
4147.26	P	Fe II	141
4147.34	P	Fe I	693
4147.43		A II	9
4147.49	P	Fe I	832
4147.532		Mn I	37
4147.673		Fe I	42
4148.27	P	Fe I	832
4148.52		Cr I	241
4148.75	P	Ni I	89
4148.859		V I	26
4148.901		Ce II	28
4148.91		S III	
4149.19		K II	6
4149.22		Zr II	41
4149.372		Fe I	694
4149.445		Ti I	296
4149.45		Cr I	261
4149.49	P	Fe I	942
4149.76	P	Fe I	3
4149.831		Sm II	8
4149.897		Al III	5
4149.917		Al III	5
4149.936		Ce II	158,189
4150.08	P	V II	37
4150.138		Al III	5
4150.258		Fe I	695
4150.366		Ni I	178
4150.429		Co I	16
4150.557		Ti I	253
4150.67		Ne II	53
4150.809		Ti I	221
4150.963		Ti I	206
4150.97		Zr II	42
4151	P	O V	4
4151.00		Cr II	163
4151.46		N I	6
4151.52		Eu II	10
4151.60	P	Fe II	149
4151.79	P	Fe II	12
4151.957		Fe I	764
4151.970		Ce II	2
4151.98		La II	40
4152.07	P	Fe I	1049
4152.172		Fe I	18
4152.209		Sm II	16
4152.355		Sc I	20
4152.43		C III	21
4152.575		Cb I	1
4152.775		Cr I	261
4152.78		La II	78
4152.98	P	Fe II	45
4153.067		Cr I	35
4153.098		S II	44
4153.302		O II	19
4153.328		V I	26
4153.332		Sm II	54
4153.510		Gd II	117
4153.67	P	Ce II	159
4153.816		Cr I	35
4153.906		Fe I	695
4154.109		Fe I	694
4154.502		Fe I	355
4154.812		Fe I	694
4154.862		Gd II	67
4154.865		Ti I	221
4154.98		Fe III	
4155.217		Sm II	8,50
4155.525		Mn I	37
4155.532		Ce II	29
4156.083		Nd II	10
4156.11		A II	52
4156.24		Zr II	29
4156.265		Nd II	14
4156.3		Li II	3
4156.460		Fe I	693
4156.50		C III	21
4156.54		O II	19
4156.670		Fe I	419
4156.8		N II	50,51
4156.803		Fe I	354
4157.788		Fe I	695
4157.82		Cl II	
4158.420		Co I	144
4158.45	P	Fe II	12
4158.5906		A I	2
4158.76		O V	11
4158.798		Fe I	695
4158.90		Hf II	41
4159.033		Ce II	246
4159.407		Al II	71
4159.450		Al II	71
4159.634		Ti I	206
4159.686		V I	25
4159.725		Al II	71
4159.809		Al II	71
4160.239		Al II	71
4160.263		Al II	71
4160.28	P	Fe II	149
4160.56		P II	31
4160.561		Fe I	419
4160.62	P	Fe II	39
4160.78	P	Fe I	1116
4160.8		N II	50,51
4161.05		Cr II	162
4161.080		Fe I	689
4161.175		Ce II	22
4161.20		Zr II	42
4161.27	P	Cr II	127
4161.34	P	Ni I	86
4161.415		Cr I	305
4161.488		Fe I	422
4161.524		Ti II	21
4161.56	P	Cr II	127
4161.796		Sr II	3
4161.94		La II	
4162.072		V II	175
4162.39		S II	65
4162.40		Hf II	60
4162.698		S II	44,65
4162.732		Gd II	17
4162.80		C III	21
4162.93	P	Fe I	476a
4163.092		Gd II	44
4163.16	P	Cr I	35
4163.35	P	Fe I	1073
4163.516		Ce II	35
4163.625		Cr I	35
4163.644		Ti II	105
4163.655		V II	175
4163.658		Cb I	1
4163.676		Fe I	274,699
4163.94		Cr I	241
4164.015		V II	37
4164.134		Ti I	163
4164.1800		A I	2
4164.192		Pr II	8
4164.24	P	Fe I	694
4164.54		Pt I	6
4164.636		Ni I	28
4164.661		Cb I	1
4164.79		Fe III	118
4164.80		Fe I	418
4164.96		S III	
4165.11		S II	64
4165.184		Sc I	20
4165.519		Cr I	305
4165.606		Ce II	10
4166.003		Ba II	4
4166.311		Ti I	163
4166.37		Zr I	45
4166.73		P II	16
4166.86		Fe III	118
4167.159		Gd II	18
4167.2604		Mg I	15
4167.2712		Mg I	15
4167.52		Y I	7
4167.67	P	Ti II	21
4167.69	P	Fe II	149
4167.80		Cr I	107
4167.804		Ce II	29
4167.862		Fe I	599
4168.122		Cb I	1
4168.31		Cr I	261
4168.409		S II	44
4168.41		Fe III	118
4168.424		Al II	61
4168.511		Al II	61
4168.625		Fe I	689
4168.66	P	Fe II	22
4168.942		Fe I	694
4168.971		He I	52
4168.98		A II	
4169.09	P	Fe I	18
4169.230		O II	19

I A	Type	Element	Multiplet No.
4169.330		Ti I	163
4169.478		Sm II	24
4169.773		Ce II	161
4169.777		Fe I	693
4169.838		Cr I	278
4169.878		Ce II	173
4169.98	P	Fe II	12
4170.108		Gd II	35
4170.202		Cr I	278
4170.58	P	Cr II	18
4170.86		Cr II	181
4170.906		Fe I	482
4171.018		Ti I	206
4171.608		N II	43
4171.675		Cr I	261
4171.696		Fe I	941
4171.824		Pr II	16
4171.897		Ti II	105
4171.904		Fe I	650
4171.92		Cr II	18
4172.048		Ga I	1
4172.126		Fe I	649
4172.20	P	Fe II	148
4172.273		Pr II	13
4172.60		Cr II	18
4172.609		Ti I	163
4172.641		Fe I	689
4172.749		Fe I	19
4172.97	P	Fe I	909,1073
4173.05	P	Ti II	96
4173.18	P	Fe I	698
4173.234		Os I	4
4173.322		Fe I	355
4173.379		Nd II	16
4173.450		Fe II	27
4173.51		N II	50
4173.537		Ti II	21
4173.556		Gd II	117
4173.75		N II	50
4173.76		Y II	23
4173.77		A II	78
4173.926		Fe I	19
4174	P	N IV	14
4174.042		S II	64
4174.088		Ti I	55
4174.088		Ti II	105
4174.14		Y I	6
4174.15		Cr I	305
4174.27		Fe III	
4174.300		S II	
4174.31	P	Mn II	2
4174.33		Hf I	3
4174.419		Fe I	799
4174.472		Ti I	220
4174.795		Cr I	241
4174.917		Fe I	19
4174.941		Cr I	278
4175.227		Cr I	261
4175.538		Gd I	5
4175.606		Nd II	39
4175.640		Fe I	354
4175.89	P	Fe I	694
4175.945		Cr I	106
4176.080		Ce II	135
4176.164		N II	42
4176.44	P	Fe II	149
4176.57	P	Fe I	689
4176.571		Fe I	695
4176.793		V I	6
4177.07	P	Fe I	690
4177.17		Cr I	133
4177.321		Nd II	10
4177.357		Ti I	163
4177.50		Hf II	51
4177.52	P	Fe I	172
4177.54		Y II	14
4177.59		Co I	2
4177.597		Fe I	18
4177.70	P	Fe II	21
4178.019		Sm II	16,50
4178.39		A II	7
4178.390		V II	25
4178.855		Fe II	28
4179	P	O V	4
4179.05		Cr I	250
4179.062		V II	19
4179.226		Co I	144
4179.25		Fe III	
4179.257		Cr I	179,250
4179.31		A II	52
4179.419		V I	25
4179.422		Pr II	4
4179.43		Cr II	26
4179.55		Hf II	114
4179.585		Nd II	19
4179.667		N II	50
4179.81		Zr II	99
4179.860		Ti I	206
4179.90	P	Co I	1
4179.92	P	Cr II	127
4180.41	P	Fe I	274
4180.498		Ti I	206
4180.68		Pr II	23
4180.7		S II	64
4180.86		V II	19
4180.97	P	Fe II	148
4180.97		La II	133
4181.17		N II	49
4181.17	P	Ti II	96
4181.20	P	Fe I	908
4181.50		Cr II	181
4181.55	P	Fe I	763
4181.758		Fe I	354
4181.8838		A I	7
4182.384		Fe I	476a
4182.591		V I	24
4182.69	P	Fe II	149
4182.790		Fe I	694
4182.98		A II	36
4183	P	N IV	14
4183.025		Fe I	697
4183.20	P	Fe II	21
4183.294		Ti I	220
4183.31		Zr I	51
4183.435		V II	37
4183.764		Sm II	4
4184.09		Fe III	22
4184.22		Fe I	274
4184.252		Gd II	15
4184.26		Lu II	6
4184.329		Ti II	21
4184.475		Ni I	89
4184.895		Cr I	155
4184.895		Fe I	355
4185.334		Ce II	124
4185.345		Cr I	106
4185.456		O II	36
4185.50	P	Cr II	163
4185.61		Cl II	43
4185.66	P	Fe I	1104
4185.95		S II	
4186.01	P	Ti I	220
4186.033		Nd II	24
4186.08	P	Cr II	127
4186.119		Ti I	129
4186.24		K II	1
4186.359		Cr I	249
4186.599		Ce II	1
4186.70		Zr II	97
4187.044		Fe I	152
4187.05		C III	18
4187.246		Co I	93
4187.31		La I	5
4187.323		Ce II	86
4187.56		Zr I	45
4187.59		Fe I	694
4187.616		Tm I	
4187.68		Hf II	73
4187.802		Fe I	152
4188.099		Gd II	17
4188.128		Sm II	50
4188.694		Ti I	220
4188.82		Cl II	43
4188.88		Al III	15
4189.10		Fe III	
4189.50		Co I	2
4189.518		Pr II	8
4189.564		Fe I	940
4189.67		A II	
4189.71		S II	44,64
4189.788		O II	36
4189.841		V I	24
4189.96		Cr I	106
4190.16		Cr I	84
4190.29		Ti II	21
4190.40		V II	25
4190.626		Ce II	169
4190.66		Cr I	35
4190.712		Co I	1
4190.7127		A I	2
4190.738		Si II	
4190.89		V II	37
4191.0296		A I	7
4191.067		Gd II	34
4191.271		Cr I	35
4191.436		Fe I	152
4191.50		Zr I	108
4191.558		V I	24
4191.59		Cl II	43
4191.615		Pr II	12
4191.685		Fe I	355
4191.750		Cr I	35
4192.07		Ni II	10
4192.103		Cr I	273
4192.35		La II	78
4192.50		O II	42
4192.856		Co I	94
4193.094		Ce II	79
4193.34		La II	
4193.37	P	La II	133
4193.44		Mg II	28
4193.51		S II	10
4193.662		Cr I	248
4193.874		Ce II	85
4193.89		Cr I	248
4194.36		La II	160
4194.50	P	Fe I	274
4194.951		Cr I	248
4195.11		Cl II	43
4195.337		Fe I	693
4195.41		Cr II	161
4195.531		Ni I	239
4195.615		Fe I	478
4195.70		N III	6
4195.83		V II	19
4196.218		Fe I	693
4196.26		O II	42
4196.335		Ce II	123
4196.533		Fe I	418
4196.55		La II	41
4196.64	P	Ti II	21
4196.69		Fe III	22
4196.72		O II	42
4197.069		Gd II	117
4197.10	P	Fe I	18
4197.234		Cr I	249
4197.38	P	Fe I	976
4197.47		Cr I	249
4197.668		Ce II	136
4197.681		Gd II	
4197.95	P	Ti II	96
4197.998		Ce II	209
4198.174		Si II	
4198.268		Fe I	693
4198.310		Fe I	152
4198.3170		A I	4
4198.425		Co I	2
4198.431		Ce II	207
4198.525		Cr I	249
4198.611		V I	24
4198.645		Fe I	693
4198.669		Ce II	7
4198.724		Ce II	3
4199.02	P	Cr II	180
4199.09	P	Fe II	141
4199.098		Fe I	522
4199.099		Nd II	15
4199.27		Y II	5
4199.37	P	Fe I	416
4199.83		He II	3
4199.902		Ru I	8
4199.918		Tm II	1
4199.93		A II	124
4199.97		Fe I	3
4200.02		N III	6
4200.06		Fe III	
4200.09	P	Fe I	993
4200.103		Cr I	
4200.38		Fe III	
4200.40	P	Ti II	96
4200.464		Ni I	89
4200.6751		A I	2
4200.752		Ti I	220
4200.78	P	Fe I	44
4200.89		V I	6
4200.930		Fe I	689
4201.45		Zr I	45
4201.50		La II	
4201.58		A II	52
4201.723		Ni I	238

I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.
4201.73		Fe I	799	4213.86		Zr I	45	4225.956		Fe I	521
4201.851		Rb I	2	4214.041		Ce II	203	4226.14		Fe III	44
4201.99		A II	8,124	4214.73		N I	5	4226.426		Fe I	352
4202.031		Fe I	42	4215.023		Gd II	32	4226.44		Cl I	9
4202.154		Ni I	179	4215.430		Fe I	274,419	4226.570		Ge I	4
4202.350		V II	25	4215.524		Sr II	1	4226.65		A II	113
4202.4		Al II	87	4215.556		Rb I	2	4226.728		Ca I	2
4202.755		Fe I	476a,521	4215.69		N III	6	4226.76	P	Cr I	105
4202.944		Ce II	186	4215.76		Zr II	68	4226.827		Al II	46
4203.051		Sm II	42	4215.77		Cr II	18	4226.918	Forb	Al II	46
4203.30		Fe I	418	4215.92		N I	5	4227.02		A II	113
4203.43		A II		4215.975		Fe I	273	4227.14	P	Fe II	45
4203.465		Ti I	220	4216.04		Ba II	17	4227.140		Gd II	43
4203.570		Fe I	19	4216.186		Fe I	3	4227.34	P	Ti II	33
4203.590		Cr I	35	4216.365		Cr I	132	4227.42	P	Fe I	689
4203.67	P	Fe I	1245	4217	P	C IV	11	4227.420		Al II	46
4203.730		Tm I		4217.07		Cr II	18	4227.434		Fe I	693
4203.953		Fe I	850	4217.09		O I	33	4227.509		Al II	46
4203.987		Fe I	355	4217.15		Ne II	52	4227.545	Forb	Al II	46
4204.03		La II	53	4217.195		Gd II	49	4227.654		Ti I	278
4204.19		Cr I	35	4217.23		S II	44	4227.719		Nd II	19
4204.20		V II	25	4217.282		Nd II	57	4227.73		Cr II	155
4204.471		Cr I	272	4217.34	P	Ti II	96	4227.746		Ce II	8
4204.54		Cl II	43	4217.45		A II		4227.749		N II	33
4204.66	P	Cr II	127	4217.551		Fe I	693	4227.76		Zr I	45
4204.69		Y II	1	4217.56		La II	78	4227.875		Al II	46
4204.83	P	Cr II	180	4217.591		Ce II	19	4227.945		Al II	46
4204.857		Gd II	46	4217.626		Cr I	132	4227.999		Al II	46
4205.05		Eu II	1	4218.12	P	Fe I	19	4228.18		A II	8
4205.05	P	V II	25	4218.18	P	Ti II	33	4228.200		Nd II	36
4205.07		Cl II	67	4218.21	P	Fe I	172	4228.71	P	Fe I	690
4205.080		V II	37	4218.69		A II	64	4229.516		Fe I	416,649
4205.19		A II	111	4218.710		V I	24	4229.704		Sm II	4
4205.37	P	Mn II	2	4219.364		Fe I	800	4229.760		Fe I	41
4205.48	P	Fe II	22	4219.383		W I	3	4229.803		Gd II	117
4205.546		Fe I	689	4219.41	P	Fe I	419	4229.81		Cr II	26
4205.595		Nd II	19	4219.51		V I	24	4229.89		A II	
4205.91		Zr II	133	4219.59	P	Fe I	763	4229.955		Co I	1
4205.92		Fe III	22	4219.74	P	Fe I	832	4230.29		Cr I	106
4205.92	P	Ti II	33	4219.76		Ne II	52	4230.35		N I	5
4206.128		Sm II	38	4220.047		V II	25	4230.39	P	Ni I	150
4206.21		Ca II	16	4220.05	P	Fe I	994	4230.481		Cr I	132
4206.375		Mn II	7	4220.13		Ca II	16	4230.584		Fe I	478
4206.43		Ne II	53	4220.258		Nd II	32	4230.95		La II	83
4206.59		Hf II	74	4220.32		Fe III		4230.98		S II	67
4206.702		Fe I	3	4220.347		Fe I	482	4231.040		Ni I	136
4206.739		Pr II	8	4220.45		Cr I	106	4231.165		V II	25
4206.899		Cr I		4220.659		Sm II	15,50	4231.35		C I	17
4207.130		Fe I	352	4220.92		Ne II	52	4231.525		Fe I	647
4207.23	P	Mn II	2	4221.572		Cr I	155,248	4231.60		Ne II	52
4207.35		Cr II	26	4221.696		Ni I	86	4231.64		Zr II	99
4207.51		Cr I	133	4222.00		Cr II	180	4231.745		Ce II	
4207.61		La II	133	4222.15		P III	3	4232.065		V II	225
4208.03		Cl II	43	4222.219		Fe I	152	4232.222		Cr I	294
4208.357		Cr I	249	4222.39		Fe III		4232.378		Nd II	8
4208.610		Fe I	689,696	4222.41		Zr II	80	4232.43		Hf II	72
4208.99		Zr II	41	4222.599		Ce II	36	4232.460		V I	111
4209.02		Cr II	162	4222.67		A II	77	4232.724		Fe I	3
4209.368		Cr I	248	4222.732		Cr I	132	4232.866		Cr I	132
4209.409		Ce II	3	4222.78		O I	33	4232.952		V I	111
4209.649		Mo II	3	4222.97		K II	7	4232.96	P	Cr II	180
4209.74		V II	25	4222.98		Pr II	4	4233.167		Fe II	27
4209.756		Cr I	155	4223.020		Gd II	141	4233.25		Cr II	31
4209.84	P	Cr II	180	4223.04		N I	5	4233.32		O I	33
4209.857		V I	24	4223.47		Cr I	132	4233.608		Fe I	152
4210.00		A II	78	4223.73	P	Fe I	417	4233.996		Co I	1
4210.22		La II		4224.09	P	Cr II	31	4234.000		V I	6,111
4210.352		Fe I	152	4224.176		Fe I	689	4234.09		Cl II	24
4210.352		Sm II	8	4224.27		Zr II	29	4234.196		Nd II	20
4210.39	P	Fe I	482	4224.30	P	Fe I	1104	4234.251		V II	24
4210.62		Zr II	97	4224.43		P II	16	4234.515		Cr I	178
4210.77		Cr I	106	4224.509		Fe I	689	4234.524		V I	6
4210.87		Fe III		4224.51		V II	25	4234.55		V II	200
4211	P	O V	4	4224.514		Cr I	155	4234.573		Sm II	42
4211.286		Nd II	57	4224.57		Ne II	52	4234.727		Ce II	170
4211.349		Cr I	133	4224.63	P	Fe I	274	4235.140		Mn I	23
4211.51		Fe III	104	4224.74		N I	5	4235.290		Mn I	23
4211.729		Ti I	279	4224.795		Ti I	301	4235.49		Cl II	71,83
4211.80	P	Fe II	21	4224.85		Cr II	162	4235.54		Fe III	
4211.88		Zr II	15	4224.92		Cl II	83	4235.54	P	Ni I	256
4212.001		Gd II	15	4225.02	P	Ni I	169	4235.65	P	Fe I	215
4212.06	P	Fe I	697	4225.148		Gd II	14	4235.73		Y II	5
4212.063		Ru I	6	4225.228		V II	37	4235.756		V I	111
4212.44		Si IV	5	4225.327		Pr II	8	4235.84	P	Fe I	172
4212.95		Pd I	7	4225.328		Sm II	22	4235.94		Y I	5
4213.036		Ce II	169	4225.460		Fe I	693	4235.942		Fe I	152
4213.179		Cr I	155	4225.67		K II	4	4235.96	P	Fe I	692
4213.42	P	Fe I	274	4225.71	P	Fe I	1102	4235.98		Cr I	132
4213.5		S II	44	4225.79	P	Fe I	118	4236.33	P	Cr II	17
4213.650		Fe I	355	4225.850		Gd I	4	4236.372		Ni I	237

I A	Type	Element	Multiplet No.
4236.56		Zr II	110
4236.66	P	Fe I	907
4236.745		Sm II	53
4236.76		Fe I	906
4236.82		V II	18
4236.930		N II	48
4237.049		N II	48
4237.085		Fe I	19
4237.162		Fe I	
4237.21		Fe III	104
4237.23		A II	32
4237.27		Cr I	106
4237.57	P	Al II	23
4237.663		Sm II	8
4237.67	P	Fe I	418
4237.710		Cr I	132
4237.786		Ti I	252
4237.889		Ti I	284
4238.027		Fe I	689,696
4238.38		La II	41
4238.61	P	Fe I	849
4238.69	P	Cr II	17
4238.78		Fe III	104
4238.782		Gd II	
4238.79	P	Mn II	2
4238.816		Fe I	693
4238.957		Cr I	131
4239.01	P	Fe I	274
4239.31		Zr I	45
4239.36	P	Fe I	907
4239.5		O III	1
4239.725		Mn I	23
4239.735		Fe I	416
4239.847		Fe I	18,273
4239.912		Ce II	2
4239.95	P	Fe I	476a
4239.95		Ne II	52
4240.35		Zr I	45
4240.372		Fe I	764
4240.456		Ca I	38
4240.705		Cr I	105,178
4240.75		Al II	36
4241.019		Pr II	9
4241.112		Fe I	351
4241.20		La II	163
4241.20		Zr I	45
4241.276		Gd II	117
4241.38		Cl II	24
4241.68		Zr I	45
4241.787		N II	47,48
4241.93		Hf II	108
4242.153		Tm II	5
4242.20		Ne II	52
4242.38		Cr II	31
4242.47		Mg II	20
4242.588		Fe I	273
4242.723		Ce II	58
4242.730		Fe I	649
4242.82		Cr I	131
4242.894		V II	200
4243.368		Fe I	906
4243.528		Pr II	33
4243.60		B III	1
4243.71		A II	63,78
4243.786		Fe I	994
4243.85		Fe III	
4244.17		Ne II	62
4244.26		Mn II	7
4244.33		Cr I	240
4244.374		W I	1
4244.53	P	Fe II	12
4244.55		P II	30
4244.702		Sm II	27
4244.80		Ni II	9
4245.258		Fe I	352
4245.358		Fe I	691
4245.84		Hf II	72
4245.976		Ce II	158
4246.02	P	Fe I	649
4246.090		Fe I	906
4246.16		F II	9
4246.41		Cr II	31
4246.568		Gd II	67
4246.59	P	Fe I	689
4246.68		P III	3
4246.711		Ce II	77
4246.79	P	Fe I	216
4246.829		Sc II	7
4246.879		Nd II	14
4247.29	P	Fe I	905

I A	Type	Element	Multiplet No.
4247.31	P	Fe I	172
4247.367		Nd II	8
4247.43	P	Fe II	125
4247.432		Fe I	693
4247.56		C III	11
4248.228		Fe I	482
4248.344		Cr I	131
4248.40	P	Fe I	19
4248.676		Ce II	1
4248.72	P	Fe I	939
4248.73		Cr I	105
4248.820		V II	24
4249.114		Ti I	252
4249.32	P	Fe I	117
4249.33		Hf II	39
4249.57		P IV	2
4249.81	P	Cr I	155
4249.92		S II	66
4249.95		Fe III	
4249.99		La II	79
4250.125		Fe I	152
4250.68		Ne II	52
4250.689		Mo II	3
4250.790		Fe I	42
4250.90	P	Fe I	478
4251.1852		A I	2
4251.49	P	Fe II	12
4251.618		Ti I	162
4251.733		Gd II	15
4251.769		Ti I	251
4251.88	P	Fe I	216
4252.05	P	Ti II	95
4252.107		Ni I	136
4252.243		Cr I	131
4252.302		Co I	1
4252.62		Cr II	31
4253.02		Mn II	7
4253.28		N I	4
4253.356		Ce II	77
4253.366		Gd II	46
4253.51		Cl II	24
4253.52	P	Fe I	690
4253.55	P	Fe I	1245
4253.593		S III	4
4253.612		Gd II	
4253.74		O II	101
4253.93	P	Fe I	905
4253.98		O II	101
4254.346		Cr I	1
4254.41		V II	18
4254.420		Pr II	27
4254.7		N I	4
4254.938		Fe I	419,477
4255.01		S II	44
4255.20		Fe III	
4255.499		Fe I	416
4255.502		Cr I	105
4255.62		A II	63
4255.784		Ce II	81
4256.025		Ti I	252
4256.156		Ce II	172
4256.16		Cr II	192
4256.212		Fe I	690
4256.239		Nd II	59
4256.32	P	Fe I	172
4256.393		Sm II	37
4256.620		Cr I	131
4256.79		Fe I	1102
4257.02		V II	200
4257.121		Ce II	123
4257.368		Cr I	131
4257.42		S II	66
4257.659		Mn I	23
4257.82		Ne II	52
4258.05		Zr II	15
4258.155		Fe II	28
4258.320		Fe I	3
4258.35	P	Fe II	21
4258.523		Ti I	252
4258.619		Fe I	351
4258.956		Fe I	419
4259.15		Cr I	131
4259.18		S II	66
4259.203		Mn II	7
4259.312		V I	6
4259.34	P	Fe I	416
4259.3618		A I	9
4259.52		Cl II	42,52
4259.748		Ce II	176
4259.95	P	Fe I	70

I A	Type	Element	Multiplet No.
4259.988		Fe I	689
4260.135		Fe I	476a
4260.19		Cr I	240
4260.47	P	Mn II	2
4260.479		Fe I	152
4260.73	P	Fe I	351
4260.738		Ti I	251
4260.75		V II	18,24
4260.854		Os I	1
4261.164		Ce II	19
4261.22		Cl II	66
4261.354		Cr I	96
4261.609		Ti I	252
4261.615		Cr I	
4261.796		Pr II	23
4261.80	P	Cr II	17
4261.92		Cr II	31
4262.092		Gd II	44
4262.133		Cr I	84,178
4262.38		Cr I	154
4262.677		Sm II	37
4262.72		Hf II	15
4263.134		Ti I	162
4263.141		Cr I	247
4263.40		K II	2
4263.427		Ce II	254
4263.49	P	Cr II	17
4263.59		La II	84
4263.836		V II	24
4263.895		Fe II	
4264.19	P	Cr II	17
4264.209		Fe I	692
4264.370		Ce II	239
4264.50		V II	24
4264.743		Fe I	993
4264.88		Y II	71
4264.91		Zr II	98
4265.075		Sm II	15
4265.170		V I	
4265.260		Fe I	993,994
4265.273		Ti I	252
4265.723		Ti I	162
4265.924		Mn I	23
4266.227		Ti I	252
4266.23	P	Cr II	37
4266.2867		A I	4
4266.44		Cr I	199
4266.53		A II	7
4266.716		Nd II	58
4266.72		Zr II	80
4266.82		Cr I	105
4266.88		Fe III	
4266.968		Fe I	273
4267.02		C II	6
4267.27		C II	6
4267.30	P	Zr II	132
4267.47		A II	52
4267.802		S II	49
4267.830		Fe I	482
4267.95		Ba II	11
4268.01		Zr I	45
4268.032		Co I	1
4268.096		Ir I	4
4268.10		Hf II	86
4268.446		Co I	127
4268.643		V I	88
4268.731		Gd II	68
4268.744		Fe I	649
4268.788		Cr I	271
4268.928		Ti I	252
4268.93		Cr II	192
4268.99		C I	16
4269.02		Cr I	240
4269.28		Cr II	31
4269.50		La II	76
4269.67		Hf II	26
4269.76		S II	49
4269.87	P	Fe I	690
4269.951		Cr I	154
4270.139		Ti I	251
4270.189		Ce II	204
4270.31	P	Fe I	215
4270.39	P	Fe II	125
4270.427		Co I	29
4270.565		Nd II	12
4270.61		Cl II	66
4270.64		V II	23
4270.716		Ce II	21
4271.061		Cr I	154
4271.159		Fe I	152

I A	Type	Element	Multiplet No.
4271.47		Fe III	
4271.554		V I	88
4271.65	P	Fe I	70
4271.764		Fe I	42
4271.94	P	Ti II	95
4271.95	P	Fe I	171
4272.1690		A I	4
4272.271		Pr II	15
4272.440		Ti I	44
4272.789		Nd II	11
4272.85		Hf II	14
4272.910		Cr I	96
4273.17		O II	68
4273.312		Ti I	251
4273.317		Fe II	27
4273.42		Fe III	121
4273.52		Zr II	28
4273.87		Fe I	478
4274.13		O II	68
4274.408		Ti I	252
4274.584		Ti I	44,162
4274.803		Cr I	1
4275.19		A II	77
4275.52		O II	67
4275.561		Ce II	206
4275.57		Cr II	31
4275.64		La II	40
4275.72		Fe I	215
4275.90		O II	68
4275.973		Cr I	240
4276.21		O II	68
4276.441		Ti I	148
4276.51		Cl II	66
4276.657		Ti I	252
4276.684		Fe I	976
4276.71		O II	54,67
4276.958		V I	88
4277.246		Mo I	7
4277.279		Nd II	17
4277.322		Th II	2
4277.37		Zr II	40
4277.40		O II	67,68
4277.41	P	Fe I	214
4277.55		A II	32
4277.68		Fe I	172
4277.90		O II	67
4278.01	P	Fe I	1102
4278.10		Cr II	161
4278.128		Fe II	32
4278.231		Ti I	291
4278.234		Fe I	691
4278.38	P	Fe I	351
4278.54		S II	49
4278.829		Ti I	252
4278.866		Ce II	111
4278.893		V II	225
4278.94	P	Cr II	17
4279.023		Mo II	3
4279.3		Y II	70
4279.480		Fe I	993
4279.678		Sm II	27
4279.864		Fe I	351
4279.927		Sc II	15
4280.069		Ti I	252
4280.141		Ce II	225
4280.27		La I	5
4280.33	P	Cr II	17
4280.405		Cr I	247
4280.490		Gd II	15
4280.53		Fe I	598
4280.63	P	Fe I	416
4280.789		Sm II	46
4281.009		Sm II	
4281.03	P	Cr II	17
4281.099		Mn I	23
4281.371		Ti I	44
4281.40		O II	54
4281.60	P	Fe I	171
4282.20		Zr I	45
4282.21		Zr II	132
4282.406		Fe I	71
4282.440		Pr II	19
4282.443		Nd II	
4282.570		Nd II	13
4282.63		S II	49
4282.702		Ti I	162
4282.82		O II	54
4282.90		A II	7
4282.96		O II	67
4282.97		Al II	86

I A	Type	Element	Multiplet No.
4283.010		Ca I	5
4283.13		O II	67
4283.40	P	Fe I	215
4283.70		S III	
4283.75		O II	67
4283.772		Mn II	6
4283.87	P	Fe I	19
4284.055		V I	88
4284.084		Mn I	23
4284.21		Cr II	31
4284.415		Fe I	417
4284.425		Mn II	6
4284.51		N III	
4284.518		Nd II	10
4284.683		Ni I	86
4284.725		Cr I	96
4284.988		Ti I	148
4284.991		S III	4
4285.19	P	Ni I	86
4285.366		Ce II	11
4285.445		Fe I	597
4285.496		Sm II	27
4285.70		O II	78
4285.782		Co I	1
4285.832		Fe I	904
4285.96		C II	42
4286.006		Ti I	44
4286.13		Fe III	121
4286.13		V II	23
4286.311		Fe II	
4286.440		Fe I	414
4286.51		Zr II	69
4286.640		Sm II	42
4286.97		La II	75
4286.976		Fe I	976
4287.405		Ti I	44
4287.71	P	Ti I	45
4287.80		Ba II	16
4287.893		Ti II	20
4288.005		Ni I	178
4288.148		Fe I	273
4288.161		Ti I	43,79
4288.21		N III	
4288.53		P II	33
4288.65		Mo I	7
4288.72		N III	
4288.78	P	Ti I	45
4288.78		V II	17
4288.83		O II	54
4288.962		Fe I	214
4289.068		Ti I	44
4289.18		Zr II	117
4289.29	P	Fe I	117
4289.364		Ca I	5
4289.454		Ce II	135
4289.721		Cr I	1
4289.919		Ti I	205
4289.938		Ce II	111
4290.222		Ti II	41
4290.382		Fe I	416
4290.40		Ne II	57
4290.55		N III	
4290.80		N III	
4290.870		Fe I	351
4290.933		Ti I	44
4291.214		Ti I	45,147
4291.25		O II	55
4291.44	P	Fe I	273
4291.46		S II	49
4291.466		Fe I	3,41
4291.76		Cl II	19
4291.816		V I	120
4291.88		Ti I	251
4291.964		Cr I	240
4292.00		C II	41
4292.13	P	Fe I	70
4292.182		Sm II	32
4292.23		O II	78
4292.246		Mn II	6
4292.293		Fe I	70
4292.676		Ti I	79
4292.747		Gd II	128
4292.767		Ce II	205
4292.885		Zn I	3
4293.14		Zr II	110
4293.228		Mo I	7
4293.565		Cr I	96
4294.04	P	Fe I	214
4294.101		Ti II	20
4294.128		Fe I	41

I A	Type	Element	Multiplet No.
4294.432		S II	49
4294.623		W I	6
4294.76		N III	
4294.767		Sc II	15
4294.78		Zr I	45
4294.82		O II	54
4294.939		Fe I	598
4295.37	P	Cr II	37
4295.751		Ti I	44
4295.757		Cr I	64
4295.888		Ni I	178
4296.05		La II	53
4296.069		Ce II	172
4296.076		Gd II	46
4296.107		V I	120
4296.11		C II	42
4296.30		Cr I	176
4296.30		Gd II	117
4296.567		Fe II	28
4296.680		Ce II	2
4296.74		Zr II	98
4296.743		Sm I	3
4296.786		Ce II	57
4296.86		Fe III	121
4297.050		Cr I	64
4297.173		Gd II	
4297.60		Ba II	7
4297.681		V I	120
4297.711		Ru I	5
4297.738		Cr I	247
4297.764		Pr II	7
4297.99		A II	
4298.029		V I	120
4298.040		Fe I	520
4298.21	P	Fe I	476a
4298.515		Ni I	178
4298.664		Ti I	44
4298.767		Ni I	28
4298.986		Ca I	5
4299.17	P	Ti I	45
4299.177		F II	7
4299.229		Ti I	148
4299.242		Fe I	152
4299.25	P	Fe I	597
4299.362		Ce II	47
4299.49	P	Fe I	648
4299.636		Ti I	43
4299.65		Fe I	416
4299.718		Cr I	96
4300.052		Ti II	41
4300.1011		A I	4
4300.197		Mn II	6
4300.21	P	Fe I	975
4300.331		Ce II	134
4300.44		La II	9
4300.52	P	Ti I	205
4300.566		Ti I	44
4300.66		A II	36,76
4300.828		Fe I	976
4301.089		Ti I	44
4301.130		V II	225
4301.178		Cr I	
4301.81		Zr II	109
4301.928		Ti II	41
4302.100		Pr II	32
4302.12	P	Ni I	102
4302.123		W I	7
4302.191		Fe I	520
4302.527		Ca I	5
4302.81		O II	100
4302.88		Zr I	45
4302.979		Ti I	79
4303.06		O II	100
4303.166		Fe II	27
4303.235		Co I	1
4303.573		Nd II	10
4303.82		O II	54
4304.07		Cl II	19
4304.087		Gd II	128
4304.11		La II	165
4304.15	P	Fe I	647
4304.15		V II	213
4304.552		Fe I	414
4304.81		Fe III	121
4304.87	P	Fe I	598,756
4304.895		Gd II	
4305.00		K II	5
4305.13	P	Fe I	272
4305.20		Fe I	760
4305.447		Sr II	3

I A	Type	Element	Multiplet No.
4305.453		Cr I	96
4305.455		Fe I	476
4305.46		N I	
4305.474		Ti I	147
4305.53		O II	55
4305.715		Sc II	15
4305.763		Pr II	8
4305.910		Ti I	44
4306.214		V I	5
4306.340		Gd I	4
4306.58	P	Fe I	691
4306.724		Ce II	1
4306.945		Ti I	43
4307.08	P	Fe I	690
4307.184		V I	5
4307.20		Al II	85
4307.31		O II	53
4307.42		Cl II	19
4307.741		Ca I	5
4307.778		Nd II	63
4307.900		Ti II	41
4307.906		Fe I	42
4308.233		Gd II	47
4308.514		Ti I	79
4308.54	P	Fe I	70
4308.94		Zr II	88
4308.96		O II	64
4309.012		Sm II	1[illegible]
4309.036		Fe I	849
4309.06		Cl II	52
4309.071		Ti I	235
4309.10		K II	7
4309.11		A II	36
4309.25		A II	99
4309.32		Ba II	11
4309.382		Fe I	414
4309.46	P	Fe I	47[illegible]
4309.62		Y II	5
4309.739		Ce II	126
4309.795		V I	5
4310.37	P	Fe I	994
4310.37		Fe III	121
4310.373		Ti I	79
4310.699		Ce II	133
4310.72	P	V II	36
4310.981		Gd II	15
4311.654		Ti I	205
4312.10		O II	79
4312.23		Zr II	99
4312.469		Cr I	177
4312.550		Mn I	23
4312.861		Ti I	41
4313.034		Fe II	220
4313.04	P	Fe I	273
4313.11		N I	
4313.30		V II	23
4313.43		O II	78
4313.50		C II	28
4313.845		Gd I	4
4314.084		Sc II	15
4314.18		Si IV	4
4314.289		Fe II	32
4314.356		Ti I	45
4314.511		Nd II	9
4314.74	P	Ti I	43
4314.801		Ti I	43
4314.979		Ti II	41
4315.087		Fe I	71
4315.35		O II	64,79
4315.80		O II	78
4315.90		La II	41
4315.95	P	Fe I	171
4316.052		Gd II	43
4316.258		V II	2[illegible]
4316.266		Gd II	67,6[illegible]
4316.807		Ti II	94
4317.04		Fe I	762
4317.139		O II	2
4317.32		Zr II	40
4317.42		C II	28
4317.65		O II	53
4317.70		N I	
4318.216		Fe II	220
4318.631		Ti I	235
4318.652		Ca I	5
4318.68		S II	49
4318.77		Cr II	37
4318.81	P	Fe I	215
4318.92		C II	28
4318.936		Sm II	27

I A	Type	Element	Multiplet No.
4319.45	P	Fe I	214
4319.51		Hf II	52
4319.631		O II	2
4319.641		Cr I	96
4319.69		A II	87
4319.717		Fe II	220
4319.93		O II	61
4320.13	P	Fe I	1170
4320.36	P	Fe I	691
4320.52		Fe I	691
4320.592		Cr I	96
4320.69		Hf II	40
4320.723		Ce II	125
4320.745		Sc II	15
4320.965		Ti II	41
4321.110		Gd II	46
4321.238		Cr I	83
4321.341		Fe II	220
4321.36		Hf II	86
4321.37		N III	10
4321.617		Cr I	177
4321.655		Ti I	235
4321.95		C II	28
4322.02		V II	17
4322.195		Gd II	15
4322.51		La II	25
4322.66		Ne II	63
4322.70	P	Fe I	215
4323.284		Sm II	8
4323.35		Cl I	9
4323.37	P	Fe I	171
4323.440		Ti I	79
4323.523		Cr I	
4323.551		Pr II	23
4323.62		Zr II	141
4323.81		Fe III	32
4323.93		N III	10
4324.064		Gd II	68
4324.36	P	Fe II	147
4324.961		Fe I	70
4325.010		Sc II	15
4325.075		Cr I	104
4325.1	P	Mn II	6
4325.134		Ti I	235
4325.22		V II	233
4325.361		Ni I	116
4325.566		Gd II	103
4325.607		Ni I	86
4325.64		Zr II	108
4325.65		Cr I	176
4325.7		Li II	5
4325.70		C III	7
4325.73		Ba II	17
4325.74	P	Fe I	2
4325.765		Fe I	42
4325.766		Nd II	10
4325.77		O II	2
4325.88		C II	28
4325.95	P	Fe I	598
4326.359		Ti I	43
4326.445		Sr I	6
4326.74		Ba II	7
4326.756		Mn II	6
4326.762		Fe I	413
4326.826		Ce II	224
4326.986		Ti I	43
4327.04	P	Fe II	20
4327.100		Fe I	761
4327.125		Gd II	15
4327.48		O II	41
4327.89		O II	41
4327.92		Fe I	597
4328.15		N III	10
4328.22		Si IV	4
4328.62		O II	61
4328.91	P	Cr II	37
4329.016		Sm II	15
4329.415		Pr II	27
4329.54	P	Fe I	70
4329.62		Ba II	17
4330.024		V I	5
4330.14		N III	10
4330.264		Ti II	94
4330.44		N III	10
4330.445		Ce II	82
4330.606		Gd II	46
4330.708		Ti II	41
4330.720		Ni I	149
4330.81	P	Fe I	475
4330.962		Fe I	597

I A	Type	Element	Multiplet No.
4331.13		O II	66,75
4331.231		Co I	168
4331.25		A II	7
4331.47		O II	41
4331.529		Fe II	
4331.55		V II	36
4331.645		Ni I	52
4331.79		V II	23
4331.89		O II	41
4331.93		Mg II	27
4332.0		Al II	31
4332.06		A II	1
4332.569		Cr I	176
4332.71		S III	4
4332.76		O II	65
4332.823		V I	5
4332.88	P	Fe II	33
4333.06	P	Fe I	1135
4333.28		Zr II	132
4333.5612		A I	9
4333.76		La II	24
4333.84		S II	49
4333.913		Pr II	8
4334.153		Sm II	27
4334.29		O II	63,64
4334.65		Hf II	69
4334.77	P	V II	36
4334.840		Ti I	43
4334.96		La II	77
4335	P	N V	3
4335.15		Hf II	6
4335.290		Gd II	128
4335.3380		A I	9
4335.46	P	Fe I	477
4335.53		N III	10
4335.89		Fe I	991
4336.255		Ce II	89
4336.26		Cl II	19
4336.36		Zr II	119
4336.48		N I	
4336.51		A II	
4336.60	P	Fe I	990
4336.66		Hf II	74
4336.86	P	Fe I	692
4336.865		O II	2
4337.049		Fe I	41
4337.10		A II	113
4337.33		Ti II	94
4337.510		Gd II	128
4337.52	P	Fe I	214
4337.566		Cr I	22
4337.63		Zr II	119
4337.777		Ce II	82
4337.78		La II	138
4337.916		Ti II	20
4338.24		A II	88
4338.260		Fe I	70
4338.476		Ti I	204
4338.52		Si III	3
4338.67		He II	3
4338.694		Pr II	31
4338.697		Nd II	68
4338.70	P	Fe II	32
4338.799		Cr I	198
4338.84	P	Fe I	117
4339.13	P	Co I	1
4339.287		D	1
4339.317		Ce II	34
4339.450		Cr I	22
4339.52		N III	10
4339.56		Zr II	41
4339.718		Cr I	22
4339.78		Ne II	62
4340.018		Ti I	174
4340.03		K II	4
4340.130		Cr I	64
4340.30		S III	4
4340.36		O II	77
4340.468		H	1
4340.49	P	Fe I	272
4340.51	P	Fe I	691
4341.013		V I	5
4341.09		Cr II	179
4341.13		Zr I	61
4341.23	P	Fe I	691
4341.282		Gd II	14
4341.369		Ti II	32
4341.42		Ne II	59
4341.48		Cr I	64
4341.57	P	Fe I	644

I A	Type	Element	Multiplet No.
4342.00		O II	77
4342.071		Nd II	8
4342.179		Gd II	15
4342.23		Zr II	98
4342.83		O II	103
4342.832		V I	103
4342.84		S II	43
4343.163		Cr I	64
4343.22	P	Fe I	644
4343.257		Fe I	645
4343.36		O II	75,103
4343.62		Cl II	19
4343.699		Fe I	517
4343.798		Ti I	204
4343.86	P	Fe I	756
4343.987		Mn II	6
4344.291		Ti II	20
4344.300		Gd II	44
4344.42		O II	65
4344.487		Gd II	31
4344.507		Cr I	22
4345.085		Cr I	198
4345.1682		A I	9
4345.562		O II	2
4345.6	P	Mn II	6
4345.858		Sm II	7
4345.963		Ce II	251
4346.104		Ti I	234
4346.458		Gd I	4
4346.50	P	Fe II	202
4346.558		Fe I	598
4346.610		Ti I	204
4346.833		Cr I	104
4346.866		Al II	70
4346.89		V II	17
4346.918		Al II	70
4347.223		Al II	70
4347.239		Fe I	2
4347.310		Gd II	103
4347.316		Al II	70
4347.425		O II	16
4347.490		Pr II	30
4347.785		Al II	70
4347.801		Sm II	37
4347.802		Al II	70
4347.854		Fe I	828
4348.11		A II	7
4348.36		N III	10
4348.64	P	Zr II	132
4348.939		Fe I	414
4349.28	P	Fe II	202
4349.426		O II	2
4349.789		Ce II	59
4349.97		V II	36
4350.465		Sm II	46
4350.52		Hf II	72
4350.834		Ti II	94
4351.051		Cr I	22
4351.269		O II	16
4351.295		Nd II	10
4351.37	P	Fe I	691
4351.549		Fe I	413
4351.764		Fe II	27
4351.770		Cr I	22
4351.849		Pr II	23
4351.8941		Mg I	14
4351.9056		Mg I	14
4352.1		C I	15
4352.101		Sm II	
4352.23		A II	1
4352.25		As II	7
4352.68	P	Cr II	37
4352.70		Fe III	4
4352.733		Ce II	220
4352.737		Fe I	71
4352.872		V I	5
4353.60		O II	76
4353.66		N III	10
4353.983		Cr I	198
4354.064		Ti I	204
4354.28	P	Fe I	975
4354.358		Fe II	213
4354.40		La II	58
4354.540		Mg I	13
4354.56		S III	7
4354.609		Sc II	14
4354.979		V I	103
4355.03	P	Fe II	202
4355.09		Eu II	22
4355.096		Ca I	37
4355.308		Ti I	174
4355.911		Ni I	149
4355.943		V I	5
4356.711		Al II	60
4356.760		Cr I	130
4356.807		Al II	60
4357.24	P	Al III	9
4357.25		O II	18,63,64
4357.50	P	Fe I	1170
4357.525		Cr I	198
4357.53	P	Fe I	994
4357.574		Fe II	
4357.85	P	Ni I	256
4358.169		Nd II	10
4358.27		N I	
4358.343		Hg I	1
4358.40		O II	64
4358.505		Fe I	412
4358.53		A II	87
4358.66		Cr I	176
4358.699		Nd II	57
4358.73		Y II	5
4358.95	P	Fe I	987
4359.12	P	Fe II	202
4359.152		Gd II	47,68
4359.38		O II	26
4359.585		Ni I	86
4359.631		Cr I	22
4359.636		Cl II	67
4359.74		Zr II	79
4359.795		Pr II	26
4359.929		Tm I	1
4359.992		Cr I	198
4360.03	P	Fe II	148
4360.16		Ce II	245
4360.487		Ti I	204
4360.49		S II	
4360.690		Be II	4
4360.720		Sm II	23
4360.80		Zr I	31
4360.813		Fe I	903
4360.917		Gd II	16
4361.025		Be II	4
4361.031		Co I	1
4361.249		Fe II	
4361.53		S III	4
4361.661		Ce II	157
4361.710		Sr I	6
4361.85		C III	
4361.913		Co I	1
4362.040		Sm II	45
4362.07		A II	39
4362.10		Ni II	9
4362.93		Cr II	179
4362.95		Cr I	82
4363.05		La II	133
4363.134		Cr I	103
4363.30		Cl I	8
4363.525		V I	23
4363.644		Mo II	3
4364.01		Y II	70
4364.14		Cr I	130
4364.140		Gd II	33
4364.17		Y II	70
4364.59		Al III	9
4364.658		Ce II	135
4364.66		La II	53
4364.73		S III	7
4364.87		Cr I	153
4364.89	P	Fe II	202
4365.56		Fe III	4
4365.72		Ne II	57
4365.745		V I	79
4365.902		Fe I	415
4366.165		Fe II	216
4366.315		Nd II	12
4366.33		Cr I	153
4366.45		Zr I	61
4366.896		O II	2
4366.91		V II	36
4367.07	P	Fe I	1170
4367.36	P	Ni I	88
4367.581		Fe I	414
4367.657		Ti II	104
4367.87		A II	98
4367.90		Hf II	15
4367.906		Fe I	41
4367.966		Cb II	8
4368.031		Sm II	37
4368.042		V I	5
4368.14		C II	45
4368.14		C III	
4368.20	P	Cr II	37
4368.234		Ce II	227
4368.252		Cr I	130
4368.262		Fe II	
4368.30		O I	5
4368.312		Ni I	102
4368.327		Pr II	5
4368.632		Nd II	11
4368.66	P	Fe I	644
4368.67	P	V II	188
4368.89		Cr I	198
4368.941		Ti I	245
4369.28		O II	26
4369.29	P	Fe I	1244
4369.404		Fe II	28
4369.52		Cl I	8
4369.61	P	Fe II	148
4369.682		Ti I	290
4369.73	P	Fe I	976
4369.77		Ne II	56
4369.771		Gd II	15
4369.774		Fe I	518
4370.041		Ni I	149
4370.27		V II	31
4370.76		A II	39
4370.875		Mn I	17
4370.95		Hf II	26
4370.96		Zr II	79
4371.00	P	Fe I	69
4371.069		Nd II	57
4371.10		Fe III	4
4371.130		Co I	93
4371.17	P	V II	36
4371.279		Cr I	22
4371.28	P	Cr I	304
4371.33		C I	14
4371.36		A II	1
4371.59		C II	45
4371.65		O II	76
4372.09		A II	86
4372.208		Ru I	13
4372.22	P	Fe II	33
4372.383		Ti I	277
4372.4		Fe III	122
4372.401		Ce II	169
4372.49		C II	45
4372.50		A II	63
4372.88	P	V II	13
4372.91		Cl II	52
4372.994		Fe I	473
4373.230		V I	140
4373.254		Cr I	22
4373.462		Sm II	42
4373.563		Fe I	214,413
4373.656		Cr I	304
4373.818		Ce II	202
4373.90	P	Fe I	904
4374.158		Cr I	104
4374.243		Gd II	83
4374.28		C II	45
4374.455		Sc II	14
4374.495		Fe I	648
4374.61	P	Cr II	179
4374.825		Ti II	93
4374.87		A II	77
4374.918		Co I	150
4374.923		Nd II	15
4374.94		Y II	13
4375.00		N II	16
4375.039		Nd II	8
4375.304		V I	140
4375.333		Cr I	103
4375.35	P	Ti II	104
4375.425		Ti I	219
4375.48	P	Fe I	797
4375.540		Co I	143
4375.918		Ce II	134
4375.932		Fe I	2
4375.96		A II	17
4376.78		C II	46
4376.782		Fe I	471,904
4376.798		Cr I	304
4377.330		Fe I	990
4377.549		Cr I	83
4377.765		Mo II	3
4377.796		Fe I	645
4377.95		Ne II	65
4378.01		O II	102

I A	Type	Element	Multiplet No.
4378.10		La II	77
4378.236		Sm II	53
4378.41		O II	102
4378.73	P	Fe I	759
4379.09		N III	17
4379.238		V I	22
4379.25		A II	63
4379.50		Ne II	56
4379.74		A II	7
4379.78		Zr II	88
4379.782		Cr I	130
4379.90		Cl I	7
4379.97		C III	14
4380.060		Ce II	155
4380.38		Mg I	12
4380.55		Cr I	130
4380.642		Gd II	68
4381.04		V I	23
4381.112		Cr I	64
4381.290		Nd II	56
4381.79	P	Fe II	9
4382.02	P	Fe I	938
4382.061		Gd II	46
4382.167		Ce II	2
4382.31		Fe III	4
4382.33	P	V II	36
4382.777		Fe I	799a
4382.853		Cr I	64
4382.95		Zr II	109
4383.10		Zr II	97
4383.119		Gd II	67
4383.17		Eu II	27
4383.24		C III	14
4383.44		La II	76
4383.547		Fe I	41
4383.79		A II	16
4384.08		Ne II	60
4384.13	P	Fe I	1101
4384.33	P	Fe II	32
4384.543		Ni I	86
4384.6	P	Ni II	10
4384.643		Mg II	10
4384.682		Fe I	474
4384.722		V I	5,22
4384.813		Sc II	14
4384.977		Cr I	22
4385.00		Ne II	56
4385.08		A II	98
4385.20		La II	75
4385.260		Fe I	415
4385.381		Fe II	27
4385.45	P	V II	30
4385.663		Nd II	50
4386.434		Tm I	1
4386.461		Ni I	168
4386.57	P	Fe II	26
4386.6		Fe I	899
4386.835		Ce II	57
4386.858		Ti II	104
4387.213		V I	40
4387.380		Cr I	84
4387.496		Cr I	103
4387.674		Gd II	15
4387.897		Fe I	476
4387.928		He I	51
4388.007		Ce II	5
4388.077		Ti I	219
4388.16		K II	7
4388.24		C III	14
4388.412		Fe I	830
4388.50		Zr II	140
4389.12	P	V II	13
4389.244		Fe I	2
4389.76		Cl I	7
4389.870		Ni I	87
4389.974		V I	22
4390.14		Na I	17
4390.322		Ni I	136
4390.460		Fe I	413
4390.585		Mg II	10
4390.858		Sm II	15
4390.953		Gd II	32
4390.954		Fe I	414
4390.977		Ti II	61
4391.110		Nd II	24
4391.114		Th II	6
4391.26		Fe III	42
4391.568		Co I	150
4391.661		Ce II	81
4391.753		Cr I	22

I A	Type	Element	Multiplet No.
4391.84		S II	43
4391.87	P	Fe I	992
4391.94		Ne II	57
4392.074		V I	23
4392.26		Cr I	130
4392.31	P	Fe I	757
4392.58		Fe I	973
4393.03	P	Fe I	473
4393.45		Na I	17
4393.534		Cr I	102
4393.70	P	Fe I	899
4393.835		V I	40
4393.925		Ti I	244
4394.057		Ti II	51
4394.31	P	Fe I	975
4394.65		A II	87
4394.719		Gd II	44
4394.779		Ce II	259
4394.83		Cr I	130
4394.855		Ti I	78
4394.94		Zr I	61
4395.031		Ti II	19
4395.228		V I	22
4395.288		Fe I	828
4395.417		Cr I	129
4395.514		Fe I	991,992
4395.78		Fe III	4
4395.788		Pr II	29
4395.848		Ti II	61
4395.95		O II	26
4397.251		Cr I	129
4397.27	P	Fe II	33
4397.37		Ti IV	
4397.51		Gd II	
4397.94		Ne II	56
4398.02		Y II	5
4398.314		Ti II	61
4398.52		V II	187
4398.625		Ni I	102
4398.787		Ce II	81
4399.14		Cl II	46
4399.203		Ce II	81
4399.44		Zr II	67
4399.607		Ni I	196
4399.767		Ti II	51
4399.823		Cr I	129
4399.86	P	Fe II	20
4400.09		A II	1
4400.18		Gd II	67
4400.26		Ni I	146
4400.355		Sc II	14
4400.575		V I	22
4400.63	P	Ti II	93
4400.828		Nd II	10
4400.870		Ni I	149
4401.02		A II	1
4401.293		Fe I	828
4401.35		Zr II	68
4401.447		Fe I	350
4401.547		Ni I	86
4401.74		A II	76
4401.97		P II	24
4402.86		S II	43
4402.875		Fe II	
4403.03		Cl I	6
4403.35		Zr II	79
4403.360		Sm II	22
4403.372		Cr I	128
4403.498		Cr I	
4403.54		Ti IV	
4403.605		Pr II	34
4404.10	P	Fe I	987
4404.276		Ti I	218,219
4404.397		Ti I	78
4404.68		V II	30
4404.752		Fe I	41
4404.81		Zr II	118
4404.911		Ti I	161
4404.932		Co I	127
4405.011		V I	23
4405.02	P	Fe I	2
4405.23		Ba II	16
4405.40	P	Fe I	991
4405.694		Ti I	78
4405.849		Pr II	4
4406.02		O II	26
4406.147		V I	40
4406.22	P	V II	30
4406.26		Cr I	152
4406.641		V I	22

I A	Type	Element	Multiplet No.
4406.67		Gd II	103
4407.278		Ce II	64
4407.637		V I	22
4407.678		Ti II	51
4407.714		Fe I	68
4407.72		Cr I	129
4407.911		Be I	4
4408.204		V I	22
4408.248		Gd II	44
4408.419		Fe I	68
4408.511		V I	22
4408.844		Pr II	4
4408.92		V II	224
4409.123		Fe I	645
4409.22		Ti II	61
4409.30		Ne II	57
4409.519		Ti II	61
4409.84		Mg I	48
4410.026		Ru I	5
4410.06		C II	40
4410.304		Cr I	129
4410.516		Ni I	88
4410.641		Ce II	33
4410.967		Cr I	102
4411.052		Nd II	8
4411.080		Ti II	115
4411.093		Cr I	129
4411.20		C II	39
4411.21		La II	138
4411.34		S I	5
4411.52		C II	39
4411.786		Co I	27
4411.878		Mn I	
4411.936		Ti II	61
4412.155		Pr II	8
4412.250		Cr I	22
4412.265		Nd II	9
4412.43	P	Fe I	69
4412.436		Ti I	54
4412.54		Ne II	55
4413.04		Zr I	61
4413.20		Ne II	57,65
4413.40	P	Fe I	1046
4413.600		Fe II	32
4413.765		Pr II	26
4413.784		Nd II	22
4413.866		Cr I	234
4414.03	P	Fe I	825
4414.17	P	V II	13
4414.20	P	Ni I	88
4414.23	P	Fe I	475
4414.29		P II	25
4414.37		O II	60
4414.432		Nd II	3
4414.47	P	Fe I	643
4414.54		Zr II	79
4414.879		Mn I	22
4414.909		O II	5
4415.125		Fe I	41
4415.37		S II	53
4415.559		Sc II	14
4416.474		V I	22
4416.535		Ti I	161
4416.77		Ne II	61
4416.817		Fe II	27
4416.975		O II	5
4417.274		Ti I	161
4417.31		P II	24
4417.37		Hf II	51
4417.398		Co I	150
4417.718		Ti II	40
4418.340		Ti II	51
4418.432		Fe I	412
4418.60	P	Fe I	899
4418.784		Ce II	2
4418.84		S III	4
4419.032		Gd II	15
4419.10		Cr I	128
4419.16		La II	89
4419.30	P	Fe I	893
4419.59		Fe III	4
4419.78	P	Fe I	644
4419.935		V I	21
4419.94		Na I	16
4420.45		Zr I	61
4420.468		Os I	1
4420.526		Sm II	32
4420.665		Sc II	14
4420.75	P	Fe II	9
4420.90		A II	1

I A	Type	Element	Multiplet No.
4421.138		Sm II	37
4421.231		Pr II	13
4421.24		Gd II	103
4421.337		Co I	150
4421.38		Ne II	66
4421.573		V I	22
4421.754		Ti I	218
4421.949		Ti II	93
4422.477		V I	79
4422.570		Fe I	350
4422.59		Y II	5
4422.697		Cr I	234
4422.76		Hf II	103
4422.823		Ti I	78
4422.882		Fe I	646
4423.000		Ni I	168
4423.145		Fe I	412
4423.212		V I	40
4423.22	P	Ti II	61
4423.31		Na I	16
4423.318		Cr I	128
4423.678		Ce II	21
4423.73		K II	5
4423.858		Fe I	830
4423.9		P II	31
4424.075		Cr I	82
4424.102		Gd II	67
4424.194		Fe I	757
4424.281		Cr I	129
4424.339		Sm II	45
4424.401		Ti I	243
4424.62	P	V II	30
4424.84		Ni I	262
4425.129		Cr I	152
4425.441		Ca I	4
4425.662		Fe I	798
4425.75	P	Fe I	555
4425.79	P	Fe I	899
4425.840		Ti I	78
4425.95		P II	24
4426.005		V I	22
4426.01		A II	7
4426.054		Ti I	161
4426.151		Gd II	14
4426.18		Hf II	87
4427.098		Ti I	128
4427.12	P	Ti I	78
4427.21		N II	56
4427.30	P	Fe I	828
4427.312		Fe I	2
4427.52		La II	76
4427.606		Gd II	66
4427.71		Cr I	129
4427.90	P	Ti II	61
4427.917		Ce II	171
4427.97		N II	55
4427.995		Mg II	9
4428.501		Cr I	129
4428.515		V I	21
4428.54		Ne II	57,61
4428.57	P	Fe I	973
4428.74	P	Fe I	899
4429.11	P	V II	13
4429.20	P	Fe I	987
4429.238		Pr II	2,4
4429.270		Ce II	19
4429.32		Fe I	972
4429.34		Zr II	118
4429.60		Ne II	74
4429.796		V I	22
4429.90		La II	38
4429.938		Cr I	234
4430.023		Ti I	267
4430.18		A II	7
4430.197		Fe I	472
4430.366		Ti I	113
4430.486		Cr I	234
4430.51	P	Cr I	128
4430.618		Fe I	68
4430.90		Ne II	56
4430.95		Fe III	4
4431.02		A II	1
4431.02		S II	32
4431.284		Ti I	218
4431.369		Sc II	14
4431.48		Zr I	61
4431.608		Co I	143
4431.626		Fe II	222
4431.67		Ne II	74
4431.82		N II	55
4431.922		Mn I	40
4432.089		Ti II	51
4432.175		Cr I	81
4432.26		Ne II	74
4432.41		S II	43
4432.572		Fe I	797
4432.739		N II	55
4432.80	P	Fe I	471
4432.82		Al II	84
4432.90	P	Fe I	271
4432.95		La II	11
4433.223		Fe I	830
4433.39	P	Fe I	412
4433.48		N II	55
4433.501		Mo II	3
4433.578		Ti I	267
4433.635		Gd II	82
4433.793		Fe I	825
4433.83		A II	123
4433.885		Sm II	41
4433.968		Cr I	128
4433.991		Mg II	9
4434.003		Ti I	113,161
4434.323		Sm II	36
4434.75		Cr I	128
4434.960		Ca I	4
4435.151		Fe I	2
4435.58		Eu II	4
4435.688		Ca I	4
4435.84		La II	8
4436.025		Mn I	40
4436.138		V I	21
4436.225		Gd II	117
4436.352		Mn I	22
4436.48		Mg II	19
4436.586		Ti I	160
4436.64		Ti I	267
4436.931		Fe I	516
4436.981		Ni I	86
4437.549		He I	50
4437.570		Ni I	168
4437.612		Ce II	169
4437.837		V I	21
4438.044		Sr I	6
4438.12		A II	123
4438.13		Gd II	67
4438.232		Ti I	218
4438.266		Gd II	44
4438.353		Fe I	828
4438.48		Cl I	6
4438.53	P	Fe I	969
4439.13	P	Fe II	32
4439.30		Ne II	65
4439.42		V II	46
4439.45		A II	127
4439.643		Fe I	515
4439.87		S III	7
4439.883		Fe I	116
4439.95		Ne II	61
4440.09		A II	76,127
4440.1		O III	33
4440.345		Ti I	159
4440.41		V II	224
4440.45		Zr II	79
4440.479		Fe I	829
4440.840		Fe I	992
4440.883		Ce II	238
4440.972		Fe I	645
4441.272		Ti I	160
4441.56	P	Fe I	987
4441.683		V I	21
4441.73	P	Ti II	40
4441.81		C IV	4
4441.99		N II	55
4442.268		Cr I	102
4442.343		Fe I	68
4442.441		Ni I	87
4442.50		Zr II	53
4442.67		Ne II	56
4442.72	P	Ce II	19
4442.835		Fe I	69
4442.99		Zr II	88
4443.05		O II	35
4443.07		Hf II	
4443.197		Fe I	350
4443.707		Cr I	234
4443.743		Ce II	171
4443.802		Ti II	19
4443.94		La II	133
4444.20	P	V II	30
4444.207		V I	21
4444.259		Sm II	
4444.267		Ti I	218
4444.393		Ce II	19
4444.559		Ti II	31
4444.563		Fe II	201
4444.704		Ce II	
4445.26	P	Fe II	9
4445.48		Fe I	2
4445.711		Co I	150
4445.77	P	V II	13
4445.88		Zr II	96
4446.248		Fe II	187
4446.387		Nd II	49
4446.46		Ne II	56
4446.487		Gd II	14
4446.71		F II	10
4446.842		Fe I	828
4446.90	P	Fe I	596
4447.033		N II	15
4447.134		Fe I	69
4447.18		F II	10
4447.722		Fe I	68
4447.8		Al II	83
4447.82	P	O III	33
4448.21		O II	35
4448.47		A II	127
4448.88		A II	127
4448.97	P	Fe I	891
4449.143		Ti I	160
4449.336		Ce II	202
4449.573		V I	62
4449.663		Fe II	222
4449.867		Pr II	4
4449.985		Ti I	159
4450.13		Ni I	178
4450.301		Ni I	236
4450.320		Fe I	476
4450.487		Ti II	19
4450.732		Ce II	3
4450.77	P	Fe I	972
4450.896		Ti I	160
4451.545		Fe II	
4451.566		Nd II	50
4451.586		Mn I	22
4451.61	P	V II	30
4451.978		Nd II	6
4452.008		V I	87
4452.32	P	Fe I	898
4452.377		O II	5
4452.45		P II	31
4452.62	P	Fe I	969
4452.70		Hf II	94
4452.727		Sm II	26
4453.005		Mn I	22
4453.312		Ti I	113
4453.35		V II	199
4453.708		Ti I	160
4453.931		Gd II	64
4454.382		Pr II	5
4454.383		Fe I	350
4454.629		Sm II	49
4454.655		Fe I	902
4454.781		Ca I	4
4454.80		Zr II	40
4455.012		Mn I	28
4455.032		Fe I	974
4455.258		Fe II	
4455.318		Mn I	28
4455.321		Ti I	113
4455.45		Cr I	127
4455.79		La II	53
4455.821		Mn I	28
4455.85	P	Fe II	140
4455.887		Ca I	4
4456.331		Fe I	516
4456.394		Nd II	50
4456.43		S II	43
4456.53		V II	199
4456.612		Ca I	4
4456.63	P	Fe I	973
4456.650		Ti II	115
4456.84	P	Cr II	16
4456.95		Ne II	61
4457.045		Mn I	28
4457.179		Nd II	18
4457.42		Zr II	79
4457.428		Ti I	113
4457.479		V I	21
4457.549		Mn I	28

I A	Type	Element	Multiplet No.
4457.759		V I	101
4458.101		Fe I	992
4458.262		Mn I	28
4458.336		Pr II	8
4458.517		Sm II	7
4458.538		Cr I	127
4459.037		Ni I	86
4459.121		Fe I	68
4459.34		Cr I	63
4459.738		Cr I	127
4459.760		V I	21
4459.96		N II	21
4460.12	P	Fe I	271
4460.16	P	V I	62
4460.213		Ce II	2
4460.292		V I	21
4460.377		Mn I	28
4460.55	P	Fe I	1100
4460.56		A II	1
4460.769		Cr I	63
4461.085		Mn I	28
4461.138		Ce II	10
4461.205		Fe I	471
4461.22		Zr II	67
4461.37		Fe I	725
4461.43	P	Fe II	26
4461.56		O III	33
4461.654		Fe I	2
4461.80	P	Fe I	412
4461.989		Fe I	471,825,902
4462.022		Mn I	28
4462.099		Ti I	8
4462.20	P	Fe I	824
4462.363		V I	87
4462.407		Nd II	54
4462.460		Ni I	86
4462.76	P	V II	13
4462.774		Cr I	127
4462.90		Fe III	106
4462.95		P II	25
4462.985		Nd II	50
4463.14	P	Fe I	471
4463.16	P	Fe I	901
4463.247		Gd II	83
4463.391		Ti I	160
4463.410		Ce II	20
4463.427		Ni I	102
4463.539		Ti I	160
4463.582		S II	43
4464.32		V II	199
4464.425		S II	
4464.458		Ti II	40
4464.669		Cr I	127
4464.677		Mn I	22
4464.69	P	Fe I	555
4464.747		V I	110
4464.773		Fe I	472
4464.907		Cr I	127
4464.97		Eu II	27
4465.075		Nd II	5
4465.15		Cr I	267
4465.33	P	Fe I	1099
4465.357		Cr I	127
4465.4		Y II	81
4465.40		O II	94
4465.54		N II	21
4465.601		Nd II	13
4465.78		Cr II	191
4465.807		Ti I	146
4466.11		P II	24
4466.13	P	Cr I	34
4466.165		Cr I	127
4466.183		Fe I	901
4466.32		O II	87
4466.394		Ni I	168
4466.41		Hf II	72
4466.547		Gd II	44
4466.554		Fe I	350
4466.57	P	Fe I	2
4466.65		K II	6
4466.881		Co I	150
4466.939		Fe I	992
4467.227		Gd II	82
4467.342		Sm II	53
4467.36		Fe III	106
4467.446		Fe I	1048
4467.537		Ce II	17
4467.561		Cr I	127
4467.83		S III	7
4467.88		O II	94

I A	Type	Element	Multiplet No.
4467.98		P II	25
4468.010		V I	87
4468.38		Cr I	127
4468.493		Ti II	31
4468.712		Pr II	20
4468.759		V I	102
4468.91		Ne II	61
4469.160		Ti II	18
4469.32		O II	59,94
4469.37		Cl I	15
4469.361		Fe I	830
4469.547		Co I	150
4469.710		V I	87
4469.850		Ce II	230
4469.92	P Forb	He I	15
4470.138		Mn I	22
4470.39	P	V II	30
4470.483		Ni I	86
4470.864		Ti II	40
4471.238		Ti I	146
4471.240		Ce II	8
4471.29		Gd II	82
4471.477		He I	14
4471.52		Ne II	65
4471.550		Co I	150
4471.68	P	Fe I	2
4471.688		He I	14
4471.81	P	Fe I	972
4472.09		Ca II	6
4472.52	P	Fe I	39
4472.57	P	Fe I	411
4472.721		Fe I	595,900
4472.792		Mn I	22
4472.921		Fe II	37
4473.015		Sm II	26
4473.782		Cr I	63
4474.03		La II	133
4474.045		V I	110
4474.194		Fe II	171
4474.714		V I	101
4474.77		A II	38
4474.852		Ti I	113,184
4474.95		O III	37
4475.19	P	Ti I	184
4475.20	P	Cr I	63
4475.22		Ne II	65
4475.24		V II	198
4475.27		P II	24
4475.28		Cl II	41,85
4475.31		Cl I	7
4475.345		Cr I	95
4475.518		Ti I	184
4475.70		V II	199
4475.72		Y I	14
4475.99	P	Fe I	899
4476.021		Fe I	350
4476.08		O II	87
4476.082		Fe I	830
4476.61	P	Ti I	184
4477.02		Cr I	63
4477.45		Y I	14
4477.74		N II	21
4477.88		O II	88
4478.03	P	V II	13
4478.040		Fe I	69
4478.319		Co I	150
4478.48		S III	7
4478.657		Sm II	
4478.795		Gd II	15
4479	P	N IV	6
4479.00	P	Fe I	987
4479.01	P	Fe I	899
4479.29		Ca II	6
4479.359		Ce II	203
4479.432		Ce II	124
4479.612		Fe I	828,848
4479.724		Ti I	146
4479.891		Al III	8
4479.968		Al III	8
4479.97	P	Fe I	974
4480.142		Fe I	515
4480.263		Cr I	197
4480.27	P	Fe I	823
4480.350		Cu I	8
4480.46	P	Fe II	20
4480.570		Ni I	211
4480.600		Ti I	146
4480.687		Fe II	
4480.85		A II	104
4481.04	P	Fe I	893

I A	Type	Element	Multiplet No.
4481.056		Gd II	44
4481.129		Mg II	4
4481.21		La II	146
4481.23		Ni I	168
4481.261		Ti I	146
4481.273		Tm II	1
4481.327		Mg II	4
4481.44		Cr I	270
4481.621		Fe I	827
4481.83		A II	39
4482.02		Cl II	85
4482.04		Zr II	131
4482.171		Fe I	2
4482.257		Fe I	68
4482.40	P	Ti II	30
4482.688		Ti I	113
4482.750		Fe I	828
4482.878		Cr I	197
4483.328		Gd II	62
4483.424		S II	43
4483.50		V II	224
4483.67		P II	25
4483.78	P	Fe I	898
4483.900		Ce II	3
4483.918		Co I	150
4484.227		Fe I	828
4484.513		Co I	27
4484.54		Ni I	102
4484.66		Cr I	151
4484.93	P	Fe II	9
4485.013		Ti I	184
4485.15		Eu II	26
4485.44		Zr II	79
4485.679		Fe I	830
4485.97	P	Fe I	825
4486.14		Hf II	23
4486.352		Gd II	135
4486.65		Hf II	107
4486.66		S II	43
4486.909		Ce II	57
4487.01	P	Fe I	988
4487.28		Y I	14
4487.36	P	Fe I	824
4487.46		B III	2
4487.46		Cr I	63
4487.47		Y I	14
4487.72		O II	104
4487.74	P	Fe I	594
4487.821		Pr II	3
4488.051		Cr I	293
4488.09		O II	104
4488.140		Fe I	819
4488.15		N II	21
4488.27	P	Ti I	184
4488.319		Ti II	115
4488.401		Gd II	82
4488.898		V I	86,110
4488.917		Fe I	213,827
4489.089		Ti I	146
4489.185		Fe II	37
4489.471		Cr I	
4489.48		O II	86
4489.741		Fe I	2
4489.87		Al II	107
4490.00		Cl II	41
4490.081		Mn I	22
4490.084		Fe I	469
4490.24	P	Fe I	319
4490.541		Ni I	134,235
4490.56		Cr I	267
4490.60		Hf II	74
4490.63	P	Fe I	891
4490.773		Fe I	974,974
4490.815		V I	86
4490.90	Forb	Al III	7
4490.99		A II	39
4491.10	P	Ce II	19
4491.164		V I	62
4491.25		O II	86
4491.401		Fe II	37
4491.678		Cr I	95
4491.858		Cr I	83
4492.312		Cr I	197
4492.3		S II	58
4492.40		N I	
4492.427		Pr II	23
4492.540		Ti I	184
4492.693		Fe I	969
4492.98	P	Fe I	639
4493.37	P	Fe I	796

I A	Type	Element	Multiplet No.
4493.53		Ti II	18
4493.579		Fe II	222
4494.05	P	Fe I	973
4494.180		Na I	15
4494.41		Zr II	130
4494.47	P	Fe I	411
4494.568		Fe I	68
4494.67		N I	
4494.71		La I	11
4494.746		Co I	168
4494.853		Gd II	14
4495	P	N IV	6
4495.006		Ti I	
4495.04		Cr I	101
4495.275		Cr I	275
4495.386		Fe I	319,970
4495.389		Ce II	154
4495.44		Zr II	79
4495.46	P	Ti II	40
4495.52	P	Fe II	147
4495.566		Fe I	827
4495.9		S II	48
4495.986		Fe I	825
4496.062		V I	110
4496.146		Ti I	146
4496.245		Ti I	8
4496.429		Pr II	4,25
4496.75	P	Ti I	184
4496.862		Cr I	10
4496.864		V I	86
4496.96		Zr II	40
4496.989		Mn II	17
4497.30		Cl II	41,85
4497.58		B III	3
4497.657		Na I	15
4497.709		Ti I	184
4497.849		Ce II	19
4497.88		S II	53
4498.276		Gd II	31
4498.54	P	Fe I	988
4498.55		A II	136
4498.730		Cr I	81
4498.76		La II	94
4498.897		Mn I	22
4498.94		Ne II	64
4499.18		P II	11
4499.29		S III	7
4499.475		Sm II	23
4500.295		Cr I	150
4500.32	P	Ti II	18
4500.86	P	V II	30
4501.112		Cr I	81
4501.256		V I	86
4501.270		Ti II	31
4501.692		Ni I	115
4501.788		Cr I	81
4501.808		Nd II	53
4501.972		V I	62
4502.16		La II	154
4502.220		Mn I	22
4502.52		Ne II	56
4502.592		Fe I	796
4502.95		A II	63
4503.05		Cr I	310
4503.13	P	V II	13
4503.762		Ti I	184
4504.23	P	Fe I	988
4504.27		Cl II	41
4504.52	P	Cr II	16
4504.838		Fe I	555
4505.00		Ca I	24
4505.22		Cr I	151
4505.33		K II	4
4505.715		Ti I	184
4505.75		Nd II	3
4505.95		Y I	14
4505.997		Cu II	1
4506.302		Ni I	133
4506.333		Gd II	44
4506.50		O II	
4506.582		Nd II	7
4506.624		Ca I	24
4506.74	P	Ti II	30
4506.853		Cr I	288
4506.931		Gd II	13
4507.11		Zr I	31
4507.19	P	Cr II	16
4507.195		Fe II	213
4507.417		Ca I	24
4507.559		N II	21

I A	Type	Element	Multiplet No.
4507.854		Ca I	24
4507.95		Cr I	267
4508.083		Ce II	153
4508.21		Ne II	68
4508.26	P	Fe II	222
4508.283		Fe II	38
4508.48		La II	52
4509.0		S II	48
4509.082		Gd II	84
4509.13	P	Fe I	213
4509.287		V I	110
4509.306		Fe I	514,937
4509.446		Ca I	24
4510.160		Pr II	20
4510.210		Mn II	17
4510.380		Gd II	30
4510.7333		A I	9
4510.82	P	Fe I	823
4510.92		N III	3
4511.04	P	Fe I	970
4511.176		Ti I	
4511.29		Ne II	70
4511.310		In I	1
4511.37		Ne II	70
4511.82	P	Cr II	191
4511.829		Sm II	14
4511.903		Cr I	150
4512.282		Ca I	24
4512.535		Al III	3
4512.72		V II	212
4512.734		Ti I	42
4512.995		Ni I	163
4513.21		Cr I	150
4513.58		Y I	15
4513.715		Ti I	112
4513.72	P	Fe I	213
4513.89		Cr I	175
4513.90	P	Ni I	131
4514.189		Fe I	514
4514.191		V I	110
4514.373		Cr I	287
4514.505		Gd II	103
4514.531		Cr I	95
4514.80		Ne II	55
4514.89		N III	3
4515.094		Sm II	
4515.17	P	Fe I	319
4515.19	P	Fe II	20
4515.337		Fe II	37
4515.440		Cr I	126
4515.558		V I	100
4515.610		Ti I	184
4516.02		C III	9
4516.08	P	Fe I	639
4516.27	P	Fe I	819
4516.38		La II	
4516.45	P	Fe I	825
4516.56	P	Cr II	191
4516.93		C III	9
4517.094		Co I	150
4517.10		Gd II	135
4517.35		V II	211
4517.43	P Forb	He I	13
4517.530		Fe I	472
4517.595		Pr II	2
4517.60	P	Fe I	992
4517.79		Ne II	55
4517.81		Ni I	103
4518.022		Ti I	42
4518.18		N III	3
4518.30	P	Ti II	18
4518.38		V II	212
4518.45		Fe I	593
4518.58	P	Fe I	69
4518.58		Lu I	
4518.63		Cr I	34,100
4518.700		Ti I	112
4518.9		S II	47
4519.02		Hf II	
4519.19		Cl II	41
4519.633		Sm II	49
4519.83		Cr I	126
4519.986		Ni I	51
4520.070		Gd II	82
4520.225		Fe II	37
4520.24	P	Fe I	471
4520.37	P	Ti II	30
4521.141		Cr I	277,287
4521.296		Gd II	44
4521.65	P	Fe I	641

I A	Type	Element	Multiplet No.
4521.924		Ni I	116
4521.94		Gd II	135
4522	P	O V	15
4522.00		Cr I	173
4522.3238		A I	7
4522.37		La II	8,74
4522.59		Eu II	4
4522.634		Fe II	38
4522.66		Ne II	68
4522.798		Ti I	42
4522.82		Gd II	103
4523.037		Sm II	3
4523.077		Ce II	2
4523.403		Fe I	829
4523.60		N III	3
4523.74	P	Ni I	99
4523.912		Sm II	41
4524.218		V I	99
4524.344		Mo I	6
4524.68		S II	40
4524.732		Ti II	60
4524.74		Hf II	104
4524.744		Sn I	5
4524.81	P	V II	212
4524.841		Cr I	276
4524.928		Ba II	3
4524.946		S II	40
4525.142		Fe I	826
4525.15	P	Fe I	819
4525.168		V I	110
4525.21	P	Ti II	18
4525.31		La II	76
4525.75	P	Fe II	9
4525.875		Fe I	319
4526.108		Cr I	196
4526.12		La II	50
4526.20		Cl I	15
4526.374		Ti I	127,184
4526.40	P	Fe I	969
4526.466		Cr I	33
4526.563		Fe I	471
4526.565		Tm II	1
4526.58	P	Fe II	171
4526.794		Co I	177
4526.935		Ca I	36
4527.25		Y I	14
4527.305		Ti I	42
4527.339		Cr I	33,82
4527.348		Ce II	108
4527.455		Ti I	7
4527.471		Cr I	174
4527.648		Cb II	8
4527.796		Fe I	641
4527.80		Y I	14
4527.86		N III	13
4527.90	P	Fe I	897
4527.919		Co I	156
4527.96		S III	7
4527.990		V I	
4528	P	N IV	6
4528.472		Ce II	1
4528.51		V II	56
4528.619		Fe I	68
4528.76	P	Fe I	595
4528.82	P	Fe I	468
4528.911		Al III	3
4529.08		V II	198
4529.176		Al III	3
4529.301		V I	95
4529.376		Tm II	5
4529.465		Ti II	82
4529.56	P	Fe II	171
4529.562		Fe I	987
4529.589		V I	99
4529.7		O III	32
4529.851		Cr I	33
4530.034		Mn II	17
4530.12	P	Cr I	126
4530.403		N II	59
4530.54		La II	73
4530.57		A II	35
4530.688		Cr I	33
4530.755		Cr I	33
4530.78		P II	25,35
4530.785		Cu I	8
4530.84		N III	3
4530.949		Co I	150
4531.152		Fe I	39
4531.60	P	Ti I	112
4531.633		Fe I	555,847,992

I A	Type	Element	Multiplet No.
4531.82		Cr I	275
4532.188		V II	212
4532.75		Cr I	212
4533.143		Fe I	641
4533.18		Hf II	25
4533.238		Ti I	42
4533.3		S II	47
4533.81		P II	25
4533.966		Ti II	50
4533.985		Co I	150
4534.154		Pr II	20
4534.166		Fe II	37
4534.26		Mg II	26
4534.57		N III	3
4534.62	P	Fe I	1169
4534.66		Ne II	58
4534.782		Ti I	42
4535.11		N III	13
4535.146		Cr I	33
4535.215		V II	210
4535.38		Hf II	72
4535.47		Ne II	55
4535.50		Fe III	
4535.51		A II	86
4535.574		Ti I	42
4535.721		Cr I	33,276
4535.75		Zr I	30
4535.87	P	Ti I	112
4535.920		Ti I	42
4535.921		Pr II	1
4536.051		Ti I	42
4536.509		Fe I	896
4536.55		Cr I	190
4536.78		Cl II	41
4537.663		V I	82
4537.67		A II	123
4537.677		Fe I	594
4537.751		Ne I	11
4537.952		Sm II	45
4538.20	P	Fe I	1071
4538.58	P	Fe I	972
4538.64		V II	212
4538.73		A II	104
4538.764		Fe I	115
4538.84		Fe I	969
4538.87		La II	149
4538.95	P	Fe I	1048
4539.096		Ti I	
4539.62		Cr II	39
4539.755		Ce II	108
4539.788		Cr I	33
4540.014		V I	100
4540.016		Gd II	135
4540.376		Ne I	17
4540.483		Ti I	8
4540.502		Cr I	33
4540.71		La II	81
4540.719		Cr I	150
4540.873		Ti I	112
4541.071		Cr I	33
4541.269		Nd II	58
4541.31		Hf II	36
4541.513		Cr I	149
4541.523		Fe II	38
4541.59		He II	2
4541.671		Na I	14
4541.953		Fe I	593
4542.22		Zr I	49
4542.422		Fe I	894
4542.603		Nd II	
4542.621		Cr I	149,275
4542.720		Fe I	827
4542.77	P	Cr II	16
4543.22	P	Fe I	893
4543.74		Cr I	100
4543.810		Co I	142
4543.91		A II	95
4543.948		Sm II	32
4544.009		Ti II	60
4544.11		Ne II	64
4544.48		Cl II	48
4544.50	P	Fe I	970
4544.619		Cr I	33
4544.688		Ti I	42
4544.70	P	Cr II	16
4544.80		N III	12
4544.961		Ce II	123
4545.08		A II	15
4545.144		Ti II	30
4545.218		Na I	14

I A	Type	Element	Multiplet No.
4545.335		Cr I	33
4545.394		V I	109
4545.49	P	Cr II	16
4545.54	P	Fe I	894
4545.956		Cr I	10
4545.985		Co I	142
4546.36		N III	13
4546.47	P	Fe I	1047
4546.68	P	Fe I	989
4546.930		Ni I	261
4547.022		Fe I	39
4547.234		Ni I	146
4547.34		N III	3
4547.78		A II	76
4547.850		Ti I	270
4547.851		Fe I	755
4548.094		Ti I	270
4548.764		Ti I	42
4549.214		Fe II	186
4549.467		Fe II	38
4549.50		La I	11
4549.547		S II	
4549.622		Ti II	82
4549.644		V I	
4549.658		Co I	150
4549.82	P	Ti II	39
4550.954		Gd II	44
4551.236		Ni I	236
4551.297		Ce II	229
4551.455		Gd II	62
4551.667		Fe I	972
4551.860		V I	82
4552.25	P	Ti II	30
4552.37		As II	4
4552.378		S II	40,48
4552.453		Ti I	42
4552.536		N II	58
4552.544		Fe I	
4552.654		S III	2
4552.659		Sm II	23
4553.01		Zr I	31
4553.056		V I	133
4553.16		Ne II	55
4553.175		Ni I	135
4553.48	P	Fe I	472
4553.949		Cr I	276
4553.96		Zr II	130
4554.033		Ba II	1
4554.28		O V	7
4554.467		Fe I	319
4554.509		Ru I	5
4554.81		P II	28
4554.830		Cr I	173
4554.989		Gd II	82
4555.02		Cr II	44
4555.069		Ti I	266
4555.09		Cr I	149
4555.30		Cr I	212
4555.30		O III	34
4555.421		Cs I	2
4555.486		Ti I	42
4555.75	P	Fe I	640
4555.890		Fe II	37
4555.922		Cu II	1
4556.129		Fe I	410,820,974
4556.136		Nd II	6
4556.169		Cr I	173
4556.735		Nd II	12
4556.765		V II	198
4556.939		Fe I	638
4557.237		Sc I	
4557.857		Ti I	270
4558.04		P II	29
4558.080		Gd II	44
4558.092		Ti I	262,263
4558.108		Fe I	894,974
4558.46		La II	39
4558.46		V II	212
4558.58	P	Fe II	20
4558.659		Cr II	44
4558.83		Cr II	44
4559.09		Fe III	
4559.28		La II	53
4559.920		Ti I	112
4559.945		Ni I	115
4560.096		Fe I	823
4560.26		Cr I	211
4560.280		Ce II	8
4560.710		V I	109
4560.959		Ce II	2

I A	Type	Element	Multiplet No.
4561.03		A II	51
4561.20		Cr I	34
4561.461		Pr II	23
4561.54		Cr I	277
4561.88		S II	
4562.05		Ne II	64
4562.360		Ce II	1
4562.5		La II	161
4562.637		Ti I	7
4563.245		Cr I	246
4563.427		Ti I	266
4563.657		Cr I	172
4563.761		Ti II	50
4563.78		A II	
4564.166		Cr I	312
4564.216		Ti I	112
4564.43		A II	85
4564.592		V II	56
4564.715		Fe I	823
4564.78		N II	14
4564.832		Fe I	472
4565.13	P	Ni I	88
4565.22		P II	36
4565.324		Fe I	641
4565.43		Zr II	116
4565.45	P	Ni I	99
4565.49		Ne II	55
4565.512		Cr I	21
4565.578		Co I	150
4565.684		Fe I	554
4565.73		Mn I	52
4565.78		Cr II	39
4565.842		Ce II	21
4566.03	P	Fe I	1169
4566.206		Sm II	32
4566.520		Fe I	641
4566.602		Cr I	125
4566.68	P	Fe I	212
4566.990		Fe I	723
4567.415		Ni I	102
4567.606		Nd II	49
4567.872		Si III	2
4567.90		La I	11
4568	P	O IV	15
4568.312		Ti II	60
4568.545		Pr II	33
4568.62	P	Fe I	989
4568.789		Fe I	554
4568.842		Fe I	894
4569.01		Ne II	69
4569.06	P	Fe I	593
4569.42		Cl II	35
4569.50		O III	36
4569.530		Cr I	173
4569.644		Cr I	173
4569.82		Fe III	82
4569.849		Nd II	5
4570.02		La I	11
4570.024		Co I	178
4570.30		Cr I	125,190
4570.34		Fe III	66
4570.425		V I	109
4570.70		Hf II	86
4570.906		Ti I	266
4570.97		La II	38
4570.977		Gd II	84
4570.98		Cr I	173
4571.0956		Mg I	1
4571.105		Cr I	125
4571.24	P	Cr II	16
4571.44	P	Fe I	319
4571.676		Cr I	32
4571.783		V I	109
4571.83		Cr I	246
4571.971		Ti II	82
4572.13		Cl II	35
4572.16		Cr I	190,246
4572.277		Ce II	1
4572.671		Be I	3
4572.83	P	Cr II	16
4572.86	P	Fe I	819
4572.92		A II	94
4573.14		Fe III	
4573.38		Cr I	246
4573.63	P	Cr II	16
4573.81		Hf II	40
4573.993		Sc I	
4574.03		Ni I	87
4574.240		Fe I	554
4574.32		Ta I	1

I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.
4574.45		Cr I	148	4588.217		Cr II	44	4602.005		Fe I	39
4574.49		Ne II	64	4588.40	P	Cr II	16	4602.11		O II	93
4574.49		Zr II	139	4588.730		Co I	15	4602.51		Cr I	210
4574.724		Fe I	115	4589.689		Al II	45	4602.75	P	Fe II	19
4574.777		Si III	2	4589.750		Al II	45	4602.944		Fe I	39
4574.87		La II	23	4589.76		Pr II	23	4602.99		Li I	6
4575.121		Cr I	196	4589.79		P II	24,36	4603.2	P	N V	1
4575.52		Zr I	5	4589.89		Cr II	44	4603.34	P	Fe I	348
4575.80		Fe I	593,970	4589.93		A II	31	4603.956		Fe I	410
4576.331		Fe II	38	4589.961		Ti II	50	4604.23	P	Fe I	348
4576.500		Mo I	6	4590.00	P	Cr II	16	4604.42		Zr I	29
4576.551		Ti I	262	4590.505		V II	210	4604.58		Cr I	190
4576.76		Cr I	148	4590.68		Fe III	52	4604.85	P	Fe I	846
4577.13	P	V II	56	4590.69		Cr I	125	4604.994		Ni I	98
4577.173		V I	4	4590.8		S II	47	4605.10	P	Fe I	348
4577.690		Sm II	23	4590.971		O II	15	4605.352		V II	56
4577.78	P	Fe II	54	4591.05		S II		4605.363		Mn I	
4578.139		Pr II	10	4591.220		V I	133	4605.78		La II	52
4578.334		Cr I	246	4591.26	P	Fe II	17	4605.79		Hf II	22
4578.558		Ca I	23	4591.394		Cr I	21	4605.99	P	Fe I	893
4578.728		V I	109	4591.818		Sm II	14	4606.146		V I	4
4579.05	P	Fe I	988	4591.991		V I	95	4606.231		Ni I	100
4579.07	P	Fe I	640	4592.09		Cr II	44	4606.375		Cr I	303
4579.198		V I	109	4592.529		Ni I	98	4606.402		Ce II	6
4579.344		Fe I	319,936	4592.54		Cr I	303	4606.514		Sm II	1
4579.39		A II	17	4592.655		Fe I	39	4606.59	P	V II	45
4579.446		Cb II	8	4593.195		Cs I	2	4607.08	P	Fe I	724
4579.523		Fe II		4593.44		A II	51	4607.153		N II	5
4579.59		Cr I	246	4593.47		C III		4607.331		Sr I	2
4579.68	P	Fe I	894	4593.544		Fe I	971	4607.655		Fe I	554,969
4579.825		Fe I	469	4593.544		Sm II	36	4607.94		Y II	80
4580.05		La II	53	4593.84		Cr I	190	4608.030		Gd II	144
4580.055		Fe II	26	4593.932		Ce II	6	4608.21		Cl III	13
4580.056		Cr I	10	4594.03		Eu I	1	4608.45		K II	7
4580.139		Co I	27	4594.103		V I	4	4608.908		Co I	57
4580.35		Ne II	72	4594.403		Cr I		4609.148		Nd II	3
4580.394		V I	4	4594.447		Nd II	52	4609.26	P	Ti II	39
4580.458		Ti II	60	4594.51	P	Ti I	262	4609.42		O II	93
4580.46	P	Fe I	348	4594.633		Co I	176	4609.60		A II	31
4580.600		Fe I	827	4594.908		Ni I		4609.646		V I	61
4580.619		Ni I	146	4594.959		Fe I	638	4609.7		Al II	44
4581.063		Cr I	148	4595.05		Cr I	190,211	4609.894		Cr I	303
4581.086		Gd II	44	4595.160		Mo I	6	4610.14		O II	92
4581.32		Y I	15	4595.21	P	Fe I	846	4610.59	P	Fe II	170
4581.380		Co I	156	4595.291		Sm II	45	4610.925		V I	39
4581.402		Ca I	23	4595.363		Fe I	594	4611.05	P	Fe I	641
4581.517		Fe I	555	4595.590		Cr I	286	4611.19	P	Fe I	319
4581.596		Co I	150	4595.68	P	Fe II	38	4611.25		A II	
4581.77		P II	9	4595.951		Ni I	101	4611.285		Fe I	826
4582.12	P	Fe II	19	4596.059		Fe I	820	4611.29	P	Fe I	819
4582.38		Gd II	82	4596.09		Fe III		4611.35	P	Fe I	17
4582.502		Ce II	7	4596.0970		A I	9	4611.968		Cr I	
4582.53		Gd II	65	4596.174		O II	15	4612.473		Nd II	3
4582.835		Fe II	37	4596.37		V II	210	4612.64		Fe I	349
4582.941		Fe I	348	4596.38		Cr I	210	4612.84		P II	9
4583.443		Ti II	39	4596.433		Fe I	823	4612.89		Ne II	64
4583.72	P	Fe I	472	4596.90		Cr I	171	4613.11		O II	93
4583.783		V I	109	4596.903		Co I	177	4613.210		Fe I	554
4583.829		Fe II	38	4596.978		Gd II	44	4613.373		Cr I	21
4583.89		Cr I	125	4597.013		Nd II	51	4613.38		La II	50
4583.99	P	Fe II	26	4597.06	P	Fe I	17	4613.47		S III	10
4584.095		Cr I	172	4597.91		Gd II	44	4613.67		O II	92
4584.28		Cl II		4598.122		Fe I	554	4613.74		Hf II	103
4584.445		Ru I	6	4598.33	P	Fe I	17	4613.868		N II	5
4584.732		Fe I	820	4598.37	P	Fe I	970	4613.95		Zr II	67
4584.75		Cr I	125	4598.441		Cr I	172	4614.15		Cr I	148
4584.824		Fe I	822	4598.528		Fe II	219	4614.216		Fe I	638
4584.934		Cr I	196	4598.74	P	Fe I	819	4614.523		Cr I	245
4585.03		Cl II	34	4598.77		A II	38	4614.58		Ni I	99
4585.088		Cr I	212	4598.99	P	Ti I	262	4614.73		Cr I	
4585.59	P	Fe I	468	4599.00		Cr I	171	4615.441		Sm II	49
4585.72		Cr I	211	4599.226		Ti I		4615.690		Sm II	22
4585.820		Al II	45	4599.25		Cr I	171	4615.98		Ne II	64,67
4585.871		Ca I	23	4599.46		Hf II	92	4616.137		Cr I	21
4585.923		Ca I	23	4600.104		Cr I	32	4616.64		Cr II	44
4585.94		V I	61	4600.11		Ne II	64	4616.95		Fe III	108
4586.138		Cr I	172	4600.19		V II	56	4617.269		Ti I	145
4586.25		Hf II	23	4600.28	P	Ti II	60	4617.94		Ni I	115
4586.364		V I	4	4600.372		Ni I	98	4618.12	P	V II	56
4586.95	P	Ti I	266	4600.59		La II	148	4618.52		V II	252
4586.99		Cr I		4600.752		Cr I	21	4618.568		Fe I	1151
4587.132		Fe I	795	4600.937		Fe I	591	4618.765		Fe I	409
4587.72	P	Fe I	971	4601.00		Cl I	15	4618.800		V I	39
4587.86		Cr I	125	4601.021		Cr I	32	4618.83		Cr II	44
4587.90		A II	16	4601.05		Gd II	44	4618.85		C II	50
4587.91		P II	15,35	4601.15		Cr I	172	4619.294		Fe I	821
4587.91		P III	7	4601.34	P	Fe II	43	4619.329		Co I	27
4588.082		Al II	45	4601.478		N II	5	4619.4	P	N V	1
4588.13		Ne II	68	4601.97		P II	15	4619.525		Ti I	261
4588.194		Al II	45	4601.97		Zr II	138	4619.551		Cr I	81

I A	Type	Element	Multiplet No.
4619.648		V I	
4619.771		V I	4
4619.87		La II	76
4620.13	P	Fe I	468
4620.38		Ni I	163
4620.513		Fe II	38
4621.00		Cr I	32
4621.28		O II	92
4621.39		Fe III	108
4621.392		N II	5
4621.41	P	Cr II	25
4621.63	P	Fe I	989
4621.893		Cr I	32
4621.963		Cr I	32,244
4622.40	P	Fe II	17
4622.491		Cr I	233
4622.71		Hf II	70
4622.71		P II	36
4622.761		Cr I	81
4623.020		Co I	156
4623.098		Ti I	145
4624.11		S II	
4624.404		V I	39
4624.42		Fe III	108
4624.561		Co I	141
4624.657		V I	94
4624.86		Zr II	116
4624.899		Ce II	27
4625.052		Fe I	554
4625.30		Cr I	171
4625.44	P	Fe I	974
4625.549		Fe II	219
4625.65		Cr I	244
4625.71		C II	49
4625.767		Co I	176
4625.911		Fe II	186
4625.925		Cr I	244
4626.188		Cr I	21
4626.36	P	Fe I	636
4626.467		Mo I	6
4626.480		V I	39
4626.53		Fe III	108
4626.544		Mn I	
4626.565		Tm II	
4626.61		P II	15
4626.758		Fe I	410
4626.78	P	Fe II	170
4626.81		Cr I	209
4627.02	P	Fe I	637
4627.22		Eu I	1
4627.48		V II	210
4627.66		Gd II	43
4627.85		Ne II	73
4627.86	P	Fe II	54
4628.160		Ce II	1
4628.4410		A I	9
4628.473		Cr I	186
4628.69	P	Fe I	819
4628.71		P II	28
4628.751		Pr II	1
4628.821		Fe II	219
4628.908		Co I	15
4629.07		Zr II	139
4629.29	P	Ti II	38
4629.336		Fe II	37
4629.336		Ti I	145
4629.359		Co I	156
4629.7		Al II	35
4629.814		Zn I	8
4629.90	P	Fe II	170
4629.98	P	Ni I	223
4630.125		Fe I	115
4630.52		C II	49
4630.537		N II	5
4630.785		Fe I	969
4631.03	P	Fe I	1071
4631.38		Si IV	6
4631.49		Fe I	1152
4631.5		Al II	97
4631.895		Fe II	219
4632.14	P	Fe I	754
4632.180		Cr I	171
4632.83	P	Fe I	820
4632.915		Fe I	39
4633.05	P	Fe I	17
4633.2		Al II	97
4633.286		Cr I	186
4633.764		Fe I	410
4633.99		Zr I	5
4634.11		Cr II	44
4634.16		N III	2
4634.21		V II	210
4634.59		Cr I	171
4634.60	P	Fe II	25
4634.73		Ne II	67
4634.95		La II	133
4635.176		V I	4
4635.328		Fe II	186
4635.539		Ti I	261
4635.62	P	Fe I	319
4635.7		Al II	97
4635.846		Fe I	349
4636.345		Ti II	38
4636.42		La II	101
4636.66	P	Fe I	513
4637.182		Cr I	32
4637.209		Ti I	261
4637.25		A II	31
4637.512		Fe I	554
4637.772		Cr I	32
4637.887		Ti I	261
4638.016		Fe I	822
4638.12		Si III	13
4638.854		O II	1
4639.001		Gd II	64,102
4639.150		Mn II	18
4639.326		Al II	69
4639.369		Ti I	145
4639.384		Al II	69
4639.538		Cr I	186
4639.669		Ti I	145
4639.725		Al II	69
4639.833		Al II	69
4639.944		Ti I	145
4640.062		V I	39
4640.14		Hf II	74
4640.309		V I	94
4640.362		Al II	69
4640.384		Al II	69
4640.431		Ti I	261
4640.55		Cr I	171
4640.64		N III	2
4640.67		Cr I	244
4640.735		V I	39
4641.22	P	Fe I	347
4641.77	Forb	K I	2
4641.811		O II	1
4641.90		N III	2
4642.011		Cr I	244
4642.235		Sm II	36
4642.27	Forb	K I	2
4642.58	P	Fe I	688
4643.086		N II	5
4643.20	P	Fe I	38
4643.468		Fe I	820
4643.69		Y I	4
4644.09	P	Fe II	31
4644.82		Zr I	64
4645.193		Ti I	145
4645.28		La II	8
4645.971		V I	4
4646.059		Pr II	22
4646.174		Cr I	21
4646.326		Gd II	82
4646.396		V I	39
4646.495		Cr I	147
4646.684		Sm II	26
4646.808		Cr I	186
4646.94	P	Ni I	145
4647	P	C IV	6
4647.34		Ne II	72
4647.40		C III	1
4647.40		Ti IV	
4647.42	P	Ni I	148
4647.437		Fe I	409
4647.50		La II	77
4647.585		Mn II	18
4647.72	P	Fe I	722
4647.759		Nd II	46
4648.126		Cr I	32
4648.160		Sm II	1
4648.17		S II	36
4648.23	P	Fe II	38
4648.62		Al II	82
4648.659		Ni I	98
4648.868		Cr I	32
4648.933		Fe II	25
4649.06		A II	51
4649.139		O II	1
4649.461		Cr I	32
4649.54	P	Cr I	233
4649.828		Fe I	592
4650.016		Ti I	145
4650.04	P	Fe II	146
4650.16		C III	1
4650.544		Al II	59
4650.646		Al II	59
4650.841		O II	1
4651.285		Cr I	21
4651.35		C III	1
4651.42	P	V II	45
4651.517		Pr II	6
4652.158		Cr I	21
4652.280		Fe II	219
4652.816		Mn II	18
4653.0		Al II	81
4653.49	P	Fe I	17
4654.14		Si IV	7
4654.23		O I	18
4654.286		Ce II	154
4654.501		Fe I	38
4654.56		O I	18
4654.57		N II	11
4654.628		Fe I	554,821
4654.736		Cr I	186
4654.986		Gd II	65
4655.05		Al II	106
4655.36		O I	18
4655.49		La II	75
4655.661		Ni I	115
4655.712		Ti I	261
4655.75	P	Ti II	38
4656.048		Ti I	145
4656.189		Cr I	147
4656.468		Ti I	6
4656.74		S II	9
4656.80		Si II	
4656.837		Cr I	311
4656.974		Fe II	43
4657.210		Ti II	59
4657.38		Ni I	254
4657.390		Co I	156
4657.598		Fe I	346
4657.64		Zr I	64
4657.94		A II	15
4658.03	P	Fe II	170
4658.03		Lu I	2
4658.12		P II	15
4658.29		Fe I	591
4658.64		C IV	8
4659.38		K II	5
4660	P	C IV	9
4660.93	P	Fe II	146
4661.19	P	Fe II	170
4661.22		Cl I	15
4661.33	P	Fe I	347
4661.538		Fe I	1207
4661.635		O II	1
4661.78		Zr II	129
4661.88		Eu I	1
4661.933		Mo I	6
4661.975		Fe I	409
4662.0	P Forb	Na I	13
4662.51		La II	8
4662.71	P	Ti II	38
4662.74	P	Ti II	38
4662.767		Mo I	6
4663.054		Al II	2
4663.183		Fe I	754
4663.328		Cr I	186
4663.403		Co I	156
4663.53		C III	5
4663.700		Fe II	44
4663.76		La II	82
4663.78		Fe III	52
4663.832		Cr I	186
4664.14		Hf II	14
4664.272		Gd II	127
4664.32	P	Ni I	147
4664.647		Pr II	27
4664.71	P	Fe I	347
4664.79	P	Fe II	17
4664.798		Cr I	186
4664.811		Na I	12
4665	P	C IV	7
4665.24	P	Fe I	1115
4665.56	P	Fe I	1044
4665.8	P Forb	Na I	13
4665.80	P	Fe II	26
4665.87		Si III	13

I A	Type	Element	Multiplet No.
4665.90		C III	5
4665.902		Cr I	233
4666.149		V I	94
4666.215		Cr I	99
4666.28		A II	51
4666.448		Gd II	101
4666.512		Cr I	186
4666.750		Fe II	37
4666.8		Al II	105
4666.994		Ni I	146
4667.181		Cr I	99
4667.28		N II	11
4667.459		Fe I	822
4667.53	P	Ti I	77
4667.585		Ti I	6
4667.766		Ni I	163
4668.07	P	Fe I	826
4668.142		Fe I	554
4668.357		Ti I	77
4668.560		Na I	12
4668.58		S II	36
4668.91		La II	76
4669.174		Fe I	821
4669.273		V I	4
4669.33		O II	90
4669.336		Cr I	186
4669.396		Sm II	7
4669.502		Ce II	
4669.53		O II	89
4669.650		Sm II	26
4669.67		Cr I	170
4669.977		Ru I	11
4670.170		Fe II	25
4670.404		Sc II	24
4670.483		V I	39
4671.25		Fe III	58
4671.36	P	Cr II	178
4671.686		Cu II	4
4671.688		Mn I	21
4671.82		La II	80
4671.94	P	Sc II	48
4672.02	P	Fe I	1045
4672.081		Pr II	21
4672.75		O I	17
4672.83	P	Fe I	40
4673.169		Fe I	820
4673.28	P	Fe I	822
4673.462		Be II	6
4673.555		Cu II	4
4673.70		O I	17
4673.75		O II	1
4673.91		C III	5
4674.41		Zr II	139
4674.599		Sm II	14
4674.65	P	Fe I	40
4674.84		Y I	4
4674.98		N II	11
4675.118		Ti I	77
4675.45		Hf II	92
4675.639		Ni I	115
4676.234		O II	1
4676.911		Sm II	3
4677.00		O II	91
4677.528		Co I	15
4677.59	P	Fe I	1072
4677.67		S III	10
4677.858		Tm II	5
4677.93		N II	62
4678.160		Cd I	2
4678.41	P	Fe I	688
4678.852		Fe I	821
4678.94	P	Ce II	153
4678.95		P II	28
4679.229		Fe I	688
4679.73	P	Ti I	77
4679.87	P	Cr II	25
4679.96	P	Fe I	1071
4680.127		Ce II	18
4680.138		Zn I	2
4680.297		Fe I	39
4680.458		Ce II	2
4680.475		Fe I	346
4680.49		Cr I	186
4680.539		W I	1
4680.734		Nd II	4
4680.870		Cr I	170
4681.05	P	Ni I	143
4681.32		S II	8
4681.52		A II	76
4681.786		Ru I	6
4681.908		Ti I	6
4681.990		Cu II	4
4682.12		La II	37
4682.28		Ha II	1
4682.29		A II	
4682.32		Y II	12
4682.361		Co I	156
4682.58		Fe I	384
4682.68		Hf II	102
4683.018		Si III	13
4683.43		Zr I	63
4683.565		Fe I	346
4683.774		Si III	13
4684.457		V I	94
4684.484		Ti I	203
4684.605		Ce II	228
4684.605		Cr I	146
4684.77		Cr II	178
4685.03	P	Fe I	347
4685.19		Zr II	129
4685.265		Ca I	51
4685.682		He II	1
4685.837		Ge I	3
4685.95	P	Fe II	50
4686.218		Ni I	98
4686.921		Ti I	203
4686.926		V I	93
4687.183		Sm II	3
4687.30	P	Fe I	17
4687.387		Fe I	347
4687.67	P	Fe I	347
4687.80		Zr I	43
4687.82	P	Ti I	111
4688.38	P	Fe I	1071
4688.392		Ti I	306
4688.45	P	V II	45
4688.45		Zr I	5
4688.65		La II	92
4689.374		Cr I	186
4689.46	P	Ti II	38
4690.146		Fe I	820
4690.38	P	Fe I	17
4690.827		Ti I	76
4690.97		O II	58
4691.17		La II	23
4691.336		Ti I	75
4691.414		Fe I	409
4691.47		O II	58
4691.55	P	Fe II	17
4692.45	P	Ti I	77
4692.50		La II	75
4692.97		Cr I	99
4693.190		Co I	156
4693.628		Sm II	14
4693.670		Ti I	6
4693.949		Cr I	99
4694.13		S I	2
4694.55		N II	61
4695.153		Cr I	99
4695.45		S I	2
4695.91		N II	68
4696.12	P	Ce II	153
4696.25		S I	2
4696.36		O II	1
4696.71	P	Sc II	48
4696.923		Ti I	203
4697.062		Cr I	62
4697.395		Cr I	195
4697.62		Cr II	177
4698.276		Sc II	13
4698.389		Co I	156
4698.408		Ni I	235
4698.456		Cr I	186
4698.48		O II	40
4698.615		Cr I	62,146
4698.62		N II	68
4698.64	P	Cr II	25
4698.67	P	Ti II	59
4698.766		Ti I	75
4698.86	P	Ti I	203
4698.947		Cr I	146
4699.180		Co I	27
4699.21		O II	25,40
4699.589		Cr I	292
4699.62		La II	39
4699.72		Hf II	71
4700.1		Ne II	67
4700.12		N II	68
4700.171		Fe I	935
4700.21		S II	52
4700.42	P	Fe I	67
4700.608		Cr I	62
4700.80		P II	14
4701.052		Fe I	820
4701.159		Mn I	21
4701.23		O II	58
4701.336		Ni I	101
4701.536		Ni I	235
4701.65		Al III	6
4701.76		O II	58
4701.90	P	Fe I	688
4701.92		Cr I	170
4702.3164		A I	9
4702.57		N II	68
4702.9758		Mg I	11
4702.9831		Mg I	11
4702.9909		Mg I	11
4703.03		Zr II	138
4703.18		O II	40
4703.27		La II	76
4703.36		A II	
4703.576		Nd II	55
4703.62		Hf II	72
4703.808		Ni I	133
4704.33		N II	68
4704.386		Co I	178
4704.395		Ne I	11
4704.397		Sm II	1
4704.958		Fe I	821
4705.099		V I	136
4705.355		O II	25
4705.464		Fe I	752
4705.50		Ni I	101
4705.93		Ni I	128
4706.102		Cr I	170
4706.178		V I	94
4706.31	P	Fe I	890
4706.41		N II	68
4706.542		Nd II	3
4706.574		V I	119
4706.967		Sc I	22
4707.281		Fe I	554
4707.487		Fe I	346
4707.541		Pr II	5
4707.754		Cr I	195
4707.78		Zr I	63
4707.80		O II	89
4708.040		Cr I	186
4708.663		Ti II	49
4708.854		Ne I	11
4708.94		Ba II	15
4708.972		Fe I	889
4708.976		Ti I	203
4709.092		Fe I	821
4709.336		Sc I	22
4709.45		N II	25,68
4709.484		Ru I	14
4709.714		Nd II	7
4709.715		Mn I	21
4710.04		Ne II	73
4710.04		O II	24
4710.058		Ne I	11
4710.08		Zr I	43
4710.186		Ti I	75,203
4710.24		Cr I	145
4710.286		Fe I	409
4710.566		V I	119
4711.68	P	Ti I	111
4711.732		Sc I	22
4711.91		Zr I	64
4711.975		Gd II	64
4712.060		Ne I	16
4712.069		Ni I	131
4712.104		Fe I	467
4712.13		N II	68
4712.92		La II	38
4713.057		Sm II	49
4713.143		He I	12
4713.18	P	Fe II	26
4713.26		Y II	22
4713.373		He I	12
4713.84	P	Ni I	128
4713.996		Ce II	250
4714.074		Fe I	1206
4714.113		V I	119
4714.182		Fe I	591
4714.421		Ni I	98
4714.53		Fe III	57
4714.83		Ce II	17
4715.12		Cr II	178

I A	Type	Element	Multiplet No.
4715.295		Ti I	6
4715.344		Ne I	16
4715.589		Nd II	49
4715.778		Ni I	98
4715.900		V I	136
4716.13	P	Sc II	13
4716.226		S II	9
4716.44		La II	52
4716.576		Gd II	102
4716.644		V I	51
4716.658		Si III	
4716.85	P	Fe I	634
4717.031		Sc I	14
4717.58		La II	87
4717.688		Cr I	170
4717.692		V I	119
4717.718		Sm II	41
4718.16		Ca II	7
4718.329		Sm II	53
4718.429		Cr I	186
4718.43		N II	68
4719.040		Gd II	43
4719.10		Hf II	15
4719.12		Zr I	66
4719.37		Ne II	67
4719.515		Ti II	59
4719.80		Zr II	116
4719.838		Sm II	3
4719.93		La II	81
4720.15	P	Fe II	54
4720.26		P II	8
4720.56	P	Fe I	1114
4720.830		Sc I	14
4720.997		Fe I	1071,409
4721.14		Cr I	232
4721.273		Gd II	83
4721.43		Cl II	75
4721.524		V I	108
4721.59		N II	68
4721.62		A II	85
4722.159		Zn I	2
4722.278		Sr I	5
4722.333		Bi I	2
4722.58		Ca II	7
4722.603		Ti I	75
4722.652		Bi I	2
4722.741		Cr I	195
4722.877		V I	108
4723	P	N IV	11
4723.06		Cr I	145
4723.171		Ti I	75
4723.18		Cr I	292
4723.37	P	Ni I	162
4723.88	P	Ni I	167
4724.07	P	Fe II	17
4724.416		Cr I	145
4724.42		La II	50
4724.679		Ti I	203
4725.090		Ce II	153
4725.67		Cr I	195
4725.94		Fe I	1134
4725.95		Cr I	99
4726.165		Fe I	384
4726.725		Gd II	148
4726.91		A II	14
4727.01	P	Fe I	635
4727.153		Cr I	99
4727.21		C II	48
4727.405		Fe I	821
4727.476		Mn I	21
4727.851		Ni I	146
4727.9	P	Mn II	5
4727.936		Co I	15
4728.41		La II	22
4728.42		Ni I	115
4728.468		Gd II	65
4728.555		Fe I	822
4728.769		Sc I	14
4729.028		Fe I	1043a
4729.226		Sc I	14
4729.291		Ni I	235
4729.45		S II	46
4729.544		V I	93
4729.699		Fe I	688
4729.723		Cr I	169
4730.0285		Mg I	10
4730.24		Ne II	72
4730.361		Mn II	5
4730.394		V I	108
4730.69		A II	94

I A	Type	Element	Multiplet No.
4730.711		Cr I	145
4730.92		As II	3
4731.172		Ti I	202
4731.36		Hf II	38
4731.439		Fe II	43
4731.77	P	Fe I	67
4731.809		Ni I	163
4732.051		Co I	15
4732.08		A II	38
4732.34		Zr I	48
4732.465		Ni I	235
4732.53		Ne II	67
4732.60		Gd II	65
4732.96	P	Ti II	29
4733	P	N IV	11
4733.426		Ti I	202
4733.596		Fe I	38
4734.094		Sc I	14
4734.100		Fe I	1133
4734.177		Pr II	4
4734.427		Gd II	43
4734.52		Y II	
4734.682		Ti I	233
4734.75		C II	48
4734.828		Co I	156
4734.94		Zr II	138
4735.67		Hf II	25
4735.75		Hf II	59
4735.846		Fe I	1042
4735.93		A II	6
4736.13		Cr I	195
4736.50		Ni I	99
4736.780		Fe I	554
4737	P	C IV	12
4737.282		Ce II	
4737.350		Cr I	145
4737.59		V II	16
4737.633		Fe I	590
4737.642		Sc I	14
4737.769		Co I	57
4738.11		C II	1
4738.29		Mn II	5
4738.41		Cl II	75
4738.52	P	Fe II	170
4739.108		Mn I	21
4739.42		Cl II	13
4739.48		Zr I	43
4739.49		Ce II	157
4739.49		P II	14
4739.59		Mg II	18
4739.80		La II	64
4740	P	N IV	11
4740.165		Ni I	99
4740.27		La II	8
4740.343		Fe I	409
4740.40		Cl II	51
4741.018		Sc I	14
4741.081		Fe I	688
4741.089		Cr I	292
4741.34	P	Ni I	166
4741.533		Fe I	346
4741.71		O II	25
4741.922		Sr I	5
4742.00		Ge II	2
4742.129		Ti I	202
4742.32	P	Ti I	111
4742.4		S II	8
4742.631		V I	128
4742.791		Ti I	233
4742.93	P	Fe I	1072
4743.08		La II	75
4743.112		Cr I	290
4743.28	P	Fe II	31
4743.814		Sc I	14
4744.13	P	Fe I	1168
4744.64	P	Fe I	17
4744.90		C II	1
4744.925		Pr II	3
4745.129		Fe I	67
4745.308		Cr I	61
4745.680		Sm II	7
4745.806		Fe I	821,1068
4746.115		Co I	182
4746.638		V I	113
4747.00		Cr I	168
4747.143		Ce II	
4747.256		Ti I	75
4747.680		Ti I	233
4747.941		Na I	11
4748.12	P	Sc II	48

I A	Type	Element	Multiplet No.
4748.525		V I	113
4748.67		Cl II	75
4748.73		La II	65
4749.25		Cr I	195
4749.25	P	Fe I	1098
4749.68		Co I	156
4749.93		Fe I	1206
4750.49	P	Fe II	206
4750.990		V I	113
4751	P	N V	5
4751	P	O VI	10
4751.04		Cr I	290
4751.34		O II	24
4751.574		V I	94
4751.822		Na I	11
4752	P	N IV	11
4752.084		Cr I	
4752.124		Ni I	165
4752.426		Ni I	132
4752.70		O II	24
4752.7313		Ne I	21
4752.87		Cr I	194
4753.06		Zr I	66
4753.152		Sc I	5
4753.957		V I	113
4754.042		Mn I	16
4754.358		Co I	156
4754.38		Ti I	202
4754.635		Pr II	4
4754.743		Cr I	168
4754.768		Ni I	141
4755.12		S II	35
4755.137		Cr I	124
4755.347		Gd II	134
4755.64		Cl II	13
4755.728		Mn II	5
4756.113		Cr I	145
4756.519		Ni I	98
4756.722		Co I	180
4757.326		Cr I	290
4757.37		V I	113
4757.50		V I	113
4757.565		W I	7
4757.582		Fe I	634,1115
4757.591		Cr I	231
4757.791		Gd II	45
4757.841		Ru I	12
4757.842		Ce II	
4758.120		Ti I	233
4758.42		Ni I	193
4758.421		Cu II	1
4758.742		V I	51
4758.913		Ti I	41
4759.272		Ti I	233
4759.74		Cr I	124
4759.74		Ti I	202
4759.907		Cr I	169
4760.07	P	Fe I	384
4760.15	P	Fe II	169
4760.23	P	Ni I	114
4760.59		Hf II	85
4760.98		Y I	4
4761.242		Cr I	169
4761.42		Cr II	176
4761.526		Mn I	21
4761.67		Zr II	107
4761.73		Cr I	194
4762	P	N IV	11
4762.376		Mn I	21
4762.41		C I	6
4762.627		Ni I	71
4762.727		Pr II	26
4762.77		Ti II	17
4762.78		Zr I	66
4763.38		S II	35
4763.624		Nd II	54
4763.79	P	Fe II	50
4763.84	P	Ti II	48
4763.865		Nd II	6
4763.950		Ni I	146
4764.294		Cr I	231
4764.535		Ti II	48
4764.643		Cr I	124
4764.7	P	Mn II	5
4764.89		A II	15
4765.30		Cl II	13
4765.485		Fe I	40
4765.78		Hf II	84
4765.859		Mn I	21
4766.330		Ti I	233

I A	Type	Element	Multiplet No.
4766.430		Mn I	21
4766.62		C I	6
4766.63		Cr I	231
4766.635		V I	113
4766.66	P	Cr I	124
4766.87	P	Fe I	688
4767.142		Co I	182
4767.280		Cr I	231
4767.30	P	Ti II	29
4767.860		Cr I	231
4768.072		Co I	156
4768.334		Fe I	821
4768.397		Fe I	384
4768.68		Cl II	40
4769.775		Ti I	233
4769.80		Cr I	283
4770.00		C I	6
4770.670		Cr I	124
4771.09		Cl II	40
4771.103		Ti I	41
4771.108		Co I	156
4771.57		Cr I	124
4771.66		Cl II	45
4771.702		Fe I	67
4771.72		C I	6
4772.32		Zr I	43
4772.54		O I	16
4772.57		O IV	9
4772.728		Gd II	133
4772.77	P	Fe II	31
4772.817		Fe I	38,467
4772.89		Ni I	162
4772.89		O I	16
4773.412		Ni I	167
4773.52	P	Fe I	408
4773.76		O I	16
4773.942		Ce II	17
4774.222		N II	20
4774.557		Cr I	124
4775.141		Cr I	230
4775.53		Cr I	283
4775.87		C I	6
4775.87	P	Fe I	1115
4776.075		Fe I	635
4776.311		Co I	158
4776.34		Fe I	1206
4776.364		V I	113
4776.519		V I	128
4777.57		Cr I	124
4777.78	P	Cr II	25
4777.846		Sm II	3
4778.233		Co I	186
4778.259		Ti I	232
4778.50		Cr I	124
4778.93		Cl II	40
4779.09		O IV	9
4779.11		S II	8
4779.347		Sc I	5
4779.444		Fe I	720
4779.710		N II	20
4779.87		Cr I	124
4779.979		Co I	158
4779.986		Ti II	92
4780.60	P	Fe II	50
4780.81	P	Fe I	633
4781.04		Y I	13
4781.168		N II	20
4781.32		Cl II	40
4781.432		Co I	57
4781.718		Ti I	41
4781.82		Cl II	13
4781.95		Ne II	71
4782.79	P	Fe I	588
4783.06		Cr I	283
4783.306		Ti I	41
4783.420		Mn I	16
4783.43		O IV	9
4784.320		Sr I	5
4784.480		V I	3
4784.70	P	Cr I	168
4784.94		Zr I	44
4785.070		Co I	186
4785.42		Lu II	5
4785.44		Cl II	40
4785.963		Fe I	1044
4786.293		Ni I	50
4786.515		V I	113
4786.541		Ni I	98
4786.58		Y II	22
4786.810		Fe I	467

I A	Type	Element	Multiplet No.
4786.908		Gd II	65
4787.50	P	Fe I	409
4787.64	P	Ti I	40
4787.74		Cr I	168
4787.84		Fe I	384
4788.126		N II	29
4788.69		Zr I	43
4788.757		Fe I	568
4788.9258		Ne I	15
4789	P	C IV	5
4789.354		Cr I	31
4789.654		Fe I	753
4789.68	P	Ce II	228
4789.803		Ti I	41
4790.218		Ne I	32
4790.337		Cr I	31
4790.56	P	Fe I	1068
4790.72		Hf II	60
4790.75	P	Fe I	632
4791.00		Ni I	71
4791.150		Gd II	65
4791.250		Fe I	633
4791.500		Sc I	5
4791.584		Sm II	7
4792.02		S II	46
4792.04		Cl II	18
4792.06		P II	36
4792.12		A II	62
4792.24	P	Ti I	40
4792.39	P	Ti II	48
4792.482		Ti I	260
4792.513		Cr I	168
4792.63		Au I	3
4792.855		Co I	158
4793.47		Ni I	158
4793.656		N II	20
4793.96	P	Fe I	512
4794.22		O IV	9
4794.36	P	Fe I	115
4794.54		Cl II	1
4794.84	P	Ti II	29
4795.62		Ne II	71
4795.84		Ni I	128
4795.853		Co I	185
4796.169		Cr I	283
4796.210		Ti I	260
4796.378		Co I	14
4796.67		La II	63
4796.84		Cr I	283
4796.930		V I	113
4797.157		Nd II	60
4797.69		Cr I	230
4797.973		V I	93
4797.983		Ti I	260
4798.25		O IV	9
4798.269		Fe I	1042
4798.40		Cl II	13
4798.535		Ti II	17
4798.736		Fe I	38
4799.06	P	Fe I	1098
4799.30		Y I	13
4799.412		Fe I	888
4799.423		Nd II	2
4799.786		V I	3
4799.797		Ti I	242
4799.83		Ni I	161
4799.859		Gd II	126
4799.918		Cd I	2
4799.94	P	V II	29
4800.100		Gd II	133
4800.14		Fe I	384
4800.55	P	Fe I	590
4800.652		Fe I	1042
4800.77	P	O IV	9
4801.030		Cr I	168
4801.05		Gd II	65
4801.150		Pr II	36
4801.63	P	Fe I	1115
4801.80		O I	15
4801.90	P	Ti I	40
4801.93	P	Ti I	40
4802.20		O I	15
4802.53	P	Fe I	1206
4802.575		Gd II	43
4802.81		S III	
4802.883		Fe I	888,934
4803.00		O I	15
4803.272		N II	20
4803.536		Gd II	102
4804.04		La II	37

I A	Type	Element	Multiplet No.
4804.12		S II	8
4804.529		Fe I	794
4804.59	P	Fe I	721
4804.64		Cr I	61
4805.105		Ti II	92
4805.18	P	Cr II	25
4805.24		Cr I	283
4805.416		Ti I	260
4805.817		Gd II	60
4805.88		Zr I	43
4806.07		A II	6
4806.165		Gd II	116
4806.296		Cr I	61
4806.53	P	Ti II	17
4806.75	P	Ti I	40
4806.939		Ni I	163
4807.14		Hf II	57
4807.249		Fe I	634,1038
4807.537		V I	113
4807.729		Fe I	689
4808.155		Fe I	633
4808.52		Ni I	114
4808.552		Ti I	305
4808.864		Ni I	160
4809.00		La II	37
4809.14		Fe I	933
4809.18		Hf II	59
4809.20	P	Fe I	1039
4809.32		Cr I	230
4809.94		Fe I	793
4810.06		Cl II	1
4810.17		V II	35
4810.286		N II	20
4810.534		Zn I	2
4810.733		Cr I	144
4810.760		Fe II	169
4811.04		Fe I	467
4811.074		Ti I	158
4811.14		V II	197
4811.343		Nd II	3
4811.57		Cl II	74
4811.61		Au I	3
4811.881		Sr I	5
4811.999		Ni I	130
4812.240		Ti I	260
4812.35		Cr II	30
4812.84		C I	5
4812.906		Ti I	41
4812.940		Cu II	8
4813.00		V II	248
4813.07		O IV	9
4813.11		Fe I	630
4813.290		Si III	9
4813.45	P	Co I	142
4813.476		Co I	158
4813.72	P	Fe I	1243
4813.952		V II	197
4813.966		Co I	158
4814.265		Cr I	144
4814.617		Ni I	98
4814.80		Ge II	2
4815.05		Zr I	44
4815.22	P	Fe I	720
4815.515		S II	9
4815.62		Zr I	43
4815.806		Sm II	14
4815.900		Co I	142
4815.92		Ni I	131
4816.012		Sm II	41
4816.41		Cr I	283
4816.47	P	Ti I	40
4816.47		Zr II	66
4816.67	P	Fe I	588
4817.22		Hf II	69
4817.33		C I	5
4817.773		Fe I	67
4817.847		Ni I	254
4818.26	P	Fe II	11
4818.66	P	Fe I	719
4819.46		Cl II	1
4819.60		S II	46,52
4819.64		Y I	13
4819.746		Si III	9
4819.79		Cl II	13
4820.336		Nd II	47
4820.410		Ti I	126
4821.01	P	Ti II	29
4821.143		Ni I	254
4821.29		Ti I	201
4821.955		Gd II	133

I A	Type	Element	Multiplet No.
4822.06		Cr I	144
4822.39	P	Ti II	110
4822.66	P	Fe I	633
4823.31		Y II	22
4823.396		V II	223
4823.516		Mn I	16
4823.84		P II	13
4823.93	P	O IV	9
4824.05		La II	50
4824.07		S II	52
4824.13		Cr II	30
4824.162		Fe I	888
4824.20		Ge II	2
4824.29		Zr I	43
4824.97	P	Cr II	25
4825.445		Ti I	250
4825.482		Nd II	3
4825.51		Cr I	144
4825.593		Mn I	43
4825.71	P	Fe II	30
4825.91		Ra I	1
4826.649		Pr II	20
4826.73		C I	5
4826.87		La II	22
4826.896		Mn I	43
4827.338		Ne I	10
4827.458		V I	3
4827.597		Ti I	250
4828.05		Zr I	44
4828.66		Cr I	31
4828.923		Si III	9
4829.028		Ni I	131
4829.23		K II	1
4829.376		Cr I	31
4829.568		Sm II	36
4829.68	P	Fe I	1038
4830.40	P	Fe II	206
4830.51		La II	51
4831.11	P	Fe II	54
4831.15	P	Ni I	100
4831.183		Ni I	111
4831.627		Cr I	208
4831.642		V I	3
4832.065		Ti I	250
4832.075		Sr I	4,5
4832.236		Cu II	1
4832.276		Nd II	
4832.427		V I	3
4832.54	P	Cr I	266
4832.704		Ni I	146
4832.734		Fe I	888,1098
4832.97	P	Cr II	176
4833.027		V I	78
4833.21	P	Fe II	30
4834.232		Gd II	65
4834.359		Co I	57
4834.511		Fe I	115
4834.618		Sm II	45
4834.82	P	Ni I	158
4835.68		Cr I	229
4835.85		S II	46
4835.862		Fe I	1068
4835.982		Nd II	1
4836.125		Ti I	241
4836.18	P	Cr I	266
4836.22		Cr II	30
4836.27		Ni I	114
4836.79		Cl II	13
4836.857		Cr I	144
4837.42	P	Ti I	250
4837.65	P	Fe I	1243
4837.65	P	Ni I	85
4837.948		Co I	15
4838.09	P	Fe I	630
4838.244		Mn I	43
4838.519		Fe I	687
4838.651		Ni I	260
4838.81	P	Fe I	1167
4839.08		V II	223
4839.251		Ti I	217
4839.251		Ti II	110
4839.549		Fe I	588
4839.616		Gd II	126
4839.62		Lu II	2
4839.77	P	Fe I	1206
4839.87		Y I	13
4840.00	P	Fe II	30
4840.02		La II	37
4840.22		Cr I	266
4840.253		Co I	158

I A	Type	Element	Multiplet No.
4840.329		Fe I	1068
4840.874		Ti I	53
4840.89	P	Fe I	1070
4841.52	P	Cr I	266
4841.65	P	Fe I	633
4841.67	P	Ni I	164
4841.701		Sm I	2
4841.73		Cr I	266
4841.90		Fe I	1070
4841.98		Zr II	138
4842.01		Ni I	260
4842.19	P	Fe I	511
4842.50		V II	248
4842.71	P	Fe I	1098
4842.78		Fe I	1069
4843.155		Fe I	687
4843.165		Ni I	50
4843.19		Mn I	43
4843.26		O II	105
4843.29		La II	98
4843.39	P	Fe I	794
4843.454		Co I	158
4843.46		Ba II	15
4843.53	P	Ni I	235
4843.829		W I	1
4843.989		Ti I	217
4844.00		Hf II	16
4844.016		Fe I	750
4844.208		Sm II	26
4844.31	P	V II	29
4844.315		Mn I	43
4844.87	P	Ce II	8
4845.01		O II	30
4845.17		Ni I	115
4845.656		Fe I	588,888
4845.67		Y I	13
4846.29		Cr I	208
4846.47	P	Fe II	25
4846.574		Ce II	17
4847.09	P	Fe I	67
4847.14		Ba II	14
4847.177		Cr I	144
4847.296		Ca I	50
4847.61	P	Fe II	30
4847.760		Sm II	53
4847.90		A II	6
4848.24		Cr II	30
4848.41	P	Ti I	217
4848.46		Hf II	83
4848.487		Ti I	201
4848.821		V I	78
4848.898		Fe I	114
4849.12	P	Ni I	112
4849.18	P	Ti II	29
4849.4		Ne II	71
4849.67	P	Fe I	793
4850.58		La II	51,88
4850.84		Ba II	15
4851.10		Mg II	25
4851.36		Zr I	43
4851.465		Cr I	208
4851.483		V I	3
4852.560		Ni I	130
4852.69		Y I	13
4853.30	P	Ni I	207
4853.52	P	Cr I	61
4853.74		Ni I	99
4854.18	P	Fe I	1243
4854.365		Sm II	36
4854.604		Mn I	43
4854.65		Zr II	78
4854.727		Ti I	217
4854.87		Y II	22
4854.89		Fe I	1043
4855.045		Sr I	10
4855.146		Cr I	61
4855.235		Co I	14
4855.414		Ni I	130
4855.54	P	Fe II	25
4855.683		Fe I	687
4855.95	P	Ti II	114
4856.012		Ti I	231
4856.19		Cr II	30
4856.49		O II	29
4856.76		O II	29
4857.04		Cl II	74
4857.34		Cr I	61
4857.382		Ni I	111
4857.60		Cr II	200
4857.938		Co I	15

I A	Type	Element	Multiplet No.
4858.24	P	Fe I	1069
4858.27	P	Fe I	1098
4858.74		N III	9
4858.88		N III	9
4859.030		Nd II	3
4859.038		Pr II	25
4859.12		Fe I	1068
4859.18		La II	86
4859.28		Si II	
4859.31	P	Fe I	632
4859.323		Ne II	2
4859.748		Fe I	318
4859.84		Y I	13
4860.029		D	1
4860.20		Cr II	30
4860.35		N II	67
4860.37		Cr I	31
4860.90		La II	8
4860.98	P	Fe I	688
4861.03		O II	57
4861.205		Cr I	31
4861.33		N III	9
4861.332		H	1
4861.842		Cr I	31
4862.054		Mn I	43
4862.54	P	Fe I	1070
4862.60	P	Fe I	1069
4863.653		Fe I	687
4863.75	P	Ti I	217
4863.78	P	Fe I	384
4863.931		Ni I	113
4864.187		Ti I	201
4864.282		Ni I	128
4864.32		Cr II	30
4864.38		P II	13
4864.741		V I	3
4864.83	P	V I	50
4864.95		O II	29
4865.02		Gd II	65
4865.43		Hf II	93
4865.620		Ti II	29
4865.96		A II	85
4866.07		Zr I	44
4866.267		Ni I	111
4866.77	P	Fe I	1093
4867.18		N III	9
4867.53	P	Fe I	38
4867.59		A II	62
4867.64	P	Fe I	587
4867.73	P	Fe II	30
4867.79	P	V II	29
4867.839		Nd II	46
4867.870		Co I	158
4868.264		Ti I	231
4868.38	P	Fe I	38
4868.700		Sr I	10
4868.82	P	Fe II	30
4869.153		Ru I	11
4869.45	P	Fe I	751
4869.8		Ne II	71
4870.05	P	Fe I	985
4870.129		Ti I	231
4870.71	P	Fe II	30
4870.796		Cr I	143
4870.845		Ni I	131
4871.27	P	Fe II	25
4871.323		Fe I	318
4871.58		O II	57
4871.94	P	Fe I	630
4872.02		Cr I	30
4872.144		Fe I	318
4872.493		Sr I	4
4872.69	P	Fe I	1115
4872.91	P	Fe I	1097
4873.27	P	Ni I	112
4873.339		Gd II	65
4873.437		Ni I	111
4873.58		N III	9
4873.74	P	Fe I	633
4874.025		Ti II	114
4874.35	P	Fe I	467
4874.651		Cr I	167
4874.805		V II	197
4874.809		Ni I	98
4875.32	P	Fe I	1038
4875.462		V I	3
4875.49.	P	V II	248
4875.72	P	Fe I	1243
4875.89		Fe I	687
4875.966		Gd II	126

I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.
4876.06		Sr I	4	4896.71		N III	9	4919.867		Ti I	200
4876.19	P	Fe I	631	4896.77		Cl II	17	4920.272		Co I	57
4876.325		Sr I	5	4898.52		Al II	96	4920.28	P	Cr II	36
4876.41		Cr II	30	4898.76		Al II	104	4920.35	P Forb	He I	49
4876.48	P	Cr II	30	4899.520		Co I	92	4920.509		Fe I	318
4877.08		A II	112	4899.64		Al II	96	4920.692		Nd II	2
4877.61	P	Fe I	384	4899.90	P	Fe II	30	4920.945		Cr I	143
4878.049		Gd II	64	4899.910		Ti I	157	4920.98		La II	7
4878.132		Ca I	35	4899.92		La II	7	4921.074		Ru I	11
4878.218		Fe I	318	4899.934		Ba II	3	4921.18	P	Ni I	100
4879.121		Pr II	20	4900.03	P	Ti I	295	4921.29		Ta I	5
4879.90		A II	14	4900.13		Y II	22	4921.69		Si II	
4880.06		Cr I	167	4900.47		S II	46	4921.768		Ti I	200
4880.20		La II	153	4900.50	P	Cr I	202	4921.80		La II	7
4880.25		Co I	15	4900.624		V I	118	4921.929		He I	48
4880.30	P	V II	29	4900.625		Ti I	295	4922.14		Cl II	17
4880.560		V I	50	4900.83	P	Cr I	202	4922.18	P	Fe I	1110
4880.922		Ti I	201	4900.97		Ni I	98	4922.267		Cr I	143
4881.25		Zr I	44	4901.30		S II	46	4922.3		Ne II	71
4881.3		Li II	4	4901.65		Cr II	190	4923.578		Gd II	126
4881.44		Y II	12	4902.77		Al II	96	4923.921		Fe II	42
4881.554		V I	3	4902.89	P	V II	29	4924.043		Zn II	3
4881.726		Fe I	588,1041	4903.10	P	Fe I	589	4924.08		S II	7
4881.81		N III	9	4903.239		Cr I	31	4924.28		Cl II	12
4881.925		Gd II	113,133	4903.317		Fe I	318	4924.60		O II	28
4882.151		Fe I	687	4903.71		Al III	11	4924.776		Fe I	114
4882.183		V I	50	4903.85	P	Fe II	30	4924.83		Cl II	39
4882.25		A II		4904.172		Co I	141	4925	P	O V	10
4882.326		Ti I	231	4904.285		V I	50	4925.17		Cl II	12
4882.462		Ce II		4904.350		V I	118	4925.28		Fe I	1065
4882.704		Co I	158	4904.413		Ni I	129	4925.32		S II	7
4883.415		V II	209	4904.447		V I	118	4925.396		Ti I	157
4883.61		Zr I	44	4904.51		Hf II	83	4925.578		Ni I	141
4883.69		Y II	22	4904.75		A II	34	4925.657		V I	50
4883.73		S II	46	4904.76		Cl II	17	4925.90		Zr II	107
4884.06		V II	197	4905.09		Zr I	43	4926.02		Ta I	6
4884.14		N III	9	4905.15		Fe I	986	4926.148		Ti I	39
4884.57		Cr II	30	4906.11		Y I	13	4926.82	P	Fe I	844
4884.915		Ne I	20,35	4906.80	P	Fe I	1096	4926.94	P	V II	29
4884.949		Cr I		4906.88		O II	28	4926.99		Hf II	13
4885.082		Ti I	157	4906.88		Si II		4927.17		P II	13
4885.435		Fe I	966	4907.125		Co I	14	4927.42		Fe I	792
4885.63		S II	15	4907.17		Cl II	39	4927.56		Fe III	43
4885.776		Cr I	30	4907.743		Fe I	687	4928.290		Co I	158
4885.957		Cr I	143	4907.888		Ru I	11	4928.342		Ti I	200
4886.17	P	Fe I	467	4908.46		Ti I	295	4928.62	P	V II	29
4886.335		Fe I	1066	4908.61	P	Fe I	115	4928.895		Ti I	39
4886.725		Ni I	158	4908.67		Zr II	145	4930.04	P	Fe I	631
4886.821		V I	50	4908.74		Fe III	111	4930.183		Cr I	259
4886.92	P	Fe II	54	4909.105		Ti I	39	4930.331		Fe I	985
4886.992		Ni I	141	4909.387		Fe I	985	4930.821		Ni I	193
4887.013		Cr I	143	4909.726		Cu II	5	4931.653		Cu II	5
4887.189		Fe I	1065	4909.87		Cr I	61	4932.00		C I	13
4887.37	P	Fe I	1037	4910.027		Fe I	687	4932.029		V I	50
4887.72		Zr I	43	4910.328		Fe I	1068	4933	P	N V	7
4887.73		Cr I	31	4910.570		Fe I	1068	4933.19	P	Fe I	1070
4888.29		A II	135	4910.838		Gd II	64	4933.24		A II	6
4888.530		Cr I	31	4911.205		Ti II	114	4933.348		Fe I	1065
4888.542		Gd II	126	4911.34		La II	87	4933.878		Fe I	968
4888.651		Fe I	1066	4911.52	P	Fe I	1098	4934.023		Fe I	1068
4889.009		Fe I	67,749	4911.593		Ru I	11	4934.086		Ba II	1
4889.06		A II	15	4911.664		Zn II	3	4934.46		Hf II	16
4889.113		Fe I	985	4911.786		Fe I	984	4934.83		La II	72
4889.15		Re I	1	4912.030		Ni I	111	4934.89		Cr I	259
4889.690		Cu II	1	4912.38		V II	222	4935.03		N I	9
4889.73		Cr I	61	4912.399		Co I	14	4935.42	P	Fe I	886
4890.45	P	Ni I	114	4912.49		Cr II	190	4935.61		La II	50
4890.762		Fe I	318	4912.52	P	Fe I	1040	4935.830		Ni I	177
4890.93		O II	28	4913.248		Sm II	53	4936.13		A II	34
4891.43		La II	95	4913.366		Fe II	218	4936.155		Gd II	116
4891.496		Fe I	318	4913.616		Ti I	157	4936.334		Cr I	166
4891.55	P	Cr II	36	4913.970		Ni I	132	4936.41		Ta I	11
4891.828		Ti I	201	4914.32		A II	112	4936.99		Cl II	12
4891.97		Cr I	61	4914.32		Cl II	17	4937.196		Cu II	6
4891.980		Sr I	10	4914.385		Nd II	52	4937.337		Ni I	114
4892.11		Gd II	116	4914.90		N I	9	4937.719		Ti I	39
4892.86		Fe I	1070	4915.236		Ti I	157	4938.04		Ti I	173
4893.065		Ti I	231	4916.67	P	Fe I	986	4938.100		Sm II	23
4893.12		Zr I	43	4916.78		Gd II	125	4938.183		Fe I	966
4893.44		Y I	13	4917.15		S II	15	4938.283		Ti I	289
4893.59	P	Fe I	1096	4917.25		Fe I	1066	4938.820		Fe I	318
4893.70	P	Fe I	1113	4917.72		Cl II	17	4939.244		Fe I	1065,1070
4893.780		Fe II	36	4918.03		Fe I	1070	4939.46	P	Fe I	1043
4893.90		Ti I	201	4918.363		Ni I	177	4939.690		Fe I	16
4893.968		Ce II	31	4918.373		Cu II	5	4940	P	O V	10
4894.218		V I	118	4918.712		Ni I	113	4941.015		Ti I	173
4894.30		Gd II	65	4918.98		Al II	103	4941.03	P	Cr II	36
4894.43		Zr II	107	4918.999		Fe I	318	4941.12		O II	33
4895.20		N II	1	4919.73	P	Fe I	631	4941.322		Ti I	39
4896.437		Fe I	984	4919.814		Th II	7	4941.562		Ti I	200

I A	Type	Element	Multiplet No.
4941.920		Ni I	114
4942.418		Mn I	20
4942.47		S II	7
4942.495		Cr I	9
4942.59	P	Fe I	1097
4942.96		A II	75
4943	P	N V	9
4943.06		O II	33
4943.074		Ti I	52
4943.24		Cl II	47
4943.24		K II	7
4943.42		P II	13
4944.388		Ti I	173
4944.59		Cr I	259
4945	P	N V	10
4945.29	P	Fe I	466
4945.38		Hf II	15
4945.458		Ni I	145
4945.65		Fe I	1113
4946.037		Ni I	148
4946.394		Fe I	687
4946.47		La II	36
4947.56		V II	197
4947.91	P	Cr I	202
4947.994		Ti I	39
4948.183		Ti I	200
4948.54		Fe III	
4948.627		Sm II	49
4948.64	P	Cr I	202
4948.77		Zr I	28
4948.848		Fe II	
4949.45		A II	62
4949.58		Cr I	259
4949.76		La I	4
4950.112		Fe I	687
4951.66	P	V II	29
4952	P	N V	8
4952.06		La II	92
4952.334		Ni I	113
4952.371		Sm II	32
4952.646		Fe I	1068,1111
4952.78		Cr II	
4953.179		Co I	14
4953.204		Ni I	111
4953.37	P	Ti I	39
4953.714		Cr I	166
4953.733		Cu II	9
4953.979		Fe II	168
4954.025		Gd II	114
4954.16		C II	25
4954.30	P	Fe I	1093
4954.33		P II	13
4954.811		Cr I	166
4955.78		O II	33
4957.0334		Ne I	25
4957.15		Ba II	10
4957.302		Fe I	318
4957.603		Fe I	318
4957.68	P	Fe I	1066
4958.26	P	Ti I	52
4958.788		Gd II	64
4959.130		Nd II	1
4959.52		C II	25
4959.682		Co I	14
4961.396		Nd II	22
4961.908		Fe I	845
4961.936		Sm II	41
4962.10		Al II	80
4962.263		Sr I	4
4962.564		Fe I	1097
4963.75		V II	221
4964.34	P	Cr II	36
4964.713		Ti I	173
4964.90		C II	25
4964.928		Cr I	9
4965.047		Gd II	143
4965.12		A II	14
4965.14		Ni I	147
4965.40		V II	209
4965.881		Mn I	20
4966.08	P	V II	29
4966.096		Fe I	687
4966.30	P	Fe I	986
4966.581		Co I	14
4966.80		Cr I	259
4967.30		Ti I	5
4967.40		O I	14
4967.551		Ni I	141
4967.86		O I	14
4967.899		Fe I	1067

I A	Type	Element	Multiplet No.
4967.944		Sr I	4
4968.50		V II	68
4968.566		Ti I	173
4968.575		Gd II	124
4968.709		Fe I	887
4968.76		O I	14
4969.65		P II	13
4969.927		Fe I	1066
4970.12		Cl II	12
4970.39		La II	37
4970.496		Fe I	883
4970.66	P	Fe I	985
4971.354		Ni I	274
4971.475		Ce II	
4971.668		Sr I	4
4971.92		Li I	5
4971.035		Co I	158
4972.16		A II	6
4972.39	P	Fe I	1096
4972.90	P	Fe I	631
4973.051		Ti I	173
4973.108		Fe I	984
4973.16		V II	209
4973.4	P Forb	Na I	10
4973.896		Gd II	64
4974.47		Co I	92
4975.344		Ti I	283
4975.415		Fe I	586
4976.155		Ni I	112
4976.345		Ni I	49
4976.71	P	Ni I	254
4977.6	P Forb	Na I	10
4977.653		Fe I	985
4977.731		Ti I	173
4978.11	P	Fe I	986
4978.191		Ti I	173
4978.541		Na I	9
4978.606		Fe I	966
4978.70	P	Fe I	1035
4979.58		Fe I	883
4979.84	P	Fe I	465
4980.161		Ni I	112
4980.30	P	Cr I	123
4981.30	P	Cr I	123
4981.38	P	Ti II	71
4981.732		Ti I	38
4982.13		Y II	20
4982.507		Fe I	1067
4982.813		Na I	9
4983.258		Fe I	1067
4983.63	P	Cr I	202
4983.855		Fe I	1066
4984.126		Ni I	143
4984.905		Gd II	64
4985.261		Fe I	984
4985.46	P	Cr II	36
4985.503		Cu II	6
4985.553		Fe I	318
4985.60		As II	3
4985.98	P	Fe I	1094
4986.24		Fe I	1070
4986.82		La II	22
4986.90	P	Fe I	1092
4987.377		N II	24
4987.62	P	Fe I	1094
4987.83	P	Fe I	966
4987.853		Co I	14
4988.963		Fe I	1066
4989.140		Ti I	173
4991.067		Ti I	38
4991.11	P	Fe II	25
4991.22		N II	64
4991.27		La II	57
4991.277		Fe I	1065
4991.86	P	Fe I	1094
4991.94		S II	7
4992.80	P	Fe I	1110
4993.355		Fe II	36
4993.51		S I	
4993.687		Fe I	1111
4994.133		Fe I	16
4994.14		Lu II	2
4994.358		N II	24,64
4995.062		Ti I	216
4995.41	P	Fe I	1113
4995.52		Cl II	12
4995.65	P	Ni I	145
4995.89	P	Ti II	71
4996.82		La II	93
4996.850		Ni I	144

I A	Type	Element	Multiplet No.
4997.099		Ti I	5
4997.23		N II	64
4997.81		Ba II	14
4998.233		Ni I	111
4998.373		Gd II	133
4998.43	P	Al II	30
4998.55		Cr I	123
4999.114		Fe I	1040
4999.46		La II	37
4999.504		Ti I	38
4999.69		Hf II	35
5000.335		Ni I	145
5000.73	P	Fe II	25
5000.91		Zr II	95
5000.97		Al II	79
5000.991		Ti I	173
5001.128		N II	19
5001.15		Lu I	
5001.469		N II	19
5001.489		Ca II	15
5001.871		Fe I	965
5002.02		Fe III	
5002.12		La II	92
5002.320		V I	132
5002.692		N II	4
5002.800		Fe I	687
5003.751		Ni I	50
5003.85	P	Fe I	211
5004.034		Fe I	1112
5004.187		Co I	141
5004.264		Fe II	
5004.38		Cr I	122
5004.907		Mn I	20
5005.140		N II	19,6
5005.160		Ne I	29
5005.18	P	Ti II	71
5005.60		K II	2
5005.720		Fe I	984
5006.126		Fe I	318
5006.169		W I	1
5006.71		S II	57
5006.72	P	Fe I	211
5006.787		Cu II	10
5007.209		Ti I	38
5007.286		Co I	14
5007.289		Fe I	966,1065
5007.316		N II	24
5009.35		A II	6
5009.54		S II	7
5009.652		Ti I	5
5010.045		Ni I	111
5010.202		Ti II	113
5010.30	P	Fe I	211
5010.620		N II	4
5010.821		Gd II	59
5010.961		Ni I	144
5011.24	P	Fe I	1066
5011.24		N II	64
5012.026		N II	64
5012.071		Fe I	16
5012.16	P	Fe I	1070
5012.464		Ni I	111
5012.611		Cu II	7
5012.68	P	Fe I	1093
5013.00		Ba II	10
5013.284		Ti I	173
5013.316		Cr I	60
5013.38	P	Ti II	113
5013.712		Ti II	71
5014.03		S II	15
5014.185		Ti I	5
5014.277		Ti I	38
5014.45		La II	159
5014.620		V I	132
5014.950		Fe I	965
5015.04		Gd I	6
5015.30	P	Fe I	968
5015.675		He I	4
5016.162		Ti I	38
5016.387		N II	19
5016.48	P	Fe I	1089
5016.60		V II	251
5017.16		A II	37
5017.591		Ni I	111
5017.63		A II	13
5018.02	P	Fe I	884
5018.294		Ni I	162
5018.43	P	Fe I	585
5018.434		Fe II	42
5018.78		O I	13

I A	Type	Element	Multiplet No.
5019.18	P	Fe I	1242
5019.20		Cr I	20
5019.34		O I	13
5019.361		Gd II	81
5019.478		Fe II	168
5019.74	P	Fe I	966
5019.855		V II	232
5019.979		Ca II	15
5020.028		Ti I	38
5020.13		O I	13
5020.368		Gd II	64
5020.67	P	Fe I	629
5020.819		Fe I	748
5021	P	C IV	3
5021.141		Ca II	15
5021.60	P	Fe I	1093
5021.68	P	Fe I	1067
5021.894		Fe I	629
5021.903		Cr I	8
5022.244		Fe I	965
5022.82	P	Ti II	71
5022.871		Ce II	16
5022.871		Ti I	38
5022.874		Fe II	
5023	P	C IV	3
5023.11		N II	64
5023.133		Gd II	64
5023.226		Fe I	1095
5023.39		Ti I	199
5023.476		Fe I	1150
5024.842		Ti I	38
5025.08	P	Fe I	1110
5025.54		Cr I	20
5025.570		Ti I	173
5025.665		N II	19
5025.73	P	Fe I	466
5026.50		Ni I	158
5027.136		Fe I	1065
5027.19		S II	1
5027.212		Fe I	883
5027.34	P	Fe I	968
5027.51	P	Fe I	960
5027.66	P	Cr I	202
5027.785		Fe I	1110
5028.00		Cr I	122
5028.129		Fe I	791
5029.623		Fe I	718
5029.812		Mn I	20
5030.740		Fe II	
5030.75		Fe III	
5030.784		Fe I	585
5031.019		Sc II	23
5031.030		Fe I	746,883
5031.290		Gd II	114
5031.562		Gd II	64
5031.901		Fe I	1150
5032.41		S II	7
5032.748		Ni I	207
5032.794		Fe II	
5033.2		C II	17
5034.06		Co I	91
5034.33		Hf II	26
5034.415		Pr II	37
5035.025		Fe I	885
5035.374		Ni I	143
5035.773		Fe II	
5035.908		Ti I	110
5035.961		Ni I	145
5036.294		Fe I	
5036.468		Ti I	110
5036.92		Fe II	36
5036.931		Fe I	465
5037.0		C II	17
5037.33		Ta I	12
5037.65		Ta I	2
5037.7505		Ne I	14
5037.81	P	Ti II	71
5038.400		Ti I	110
5038.599		Ni I	166
5038.81	P	Fe I	510
5038.87	P	Cr I	20
5039.05		C I	4
5039.259		Ni I	142
5039.266		Fe I	687
5039.959		Ti I	5
5040.25	P	Fe I	1093
5040.642		Ti I	38
5040.744		Ru I	11
5040.76		N II	19
5040.82		Hf II	14
5040.902		Fe I	1092,1094
5041.063		Si II	5
5041.074		Fe I	16
5041.077		Ni I	158
5041.32	P	Fe I	1328
5041.33	P	Fe I	1110
5041.620		Ca I	34
5041.66		C I	4
5041.759		Fe I	36
5042.195		Ni I	131
5042.589		Mn I	20
5043.578		Ti I	38
5044.008		Ce II	16
5044.221		Fe I	318
5044.8		C II	35
5045.098		N II	4
5045.400		Ti I	38
5046.61		Zr I	62
5047.14	P	Fe I	1242
5047.2		C II	35
5047.28		S II	15
5047.308		V II	127
5047.736		He I	47
5048.04		La II	90
5048.082		Ni I	161
5048.208		Ti I	199
5048.454		Fe I	984
5048.752		Cr I	20
5048.851		Ni I	195
5048.91		V II	209
5049.825		Fe I	114
5050.13	P	Fe I	963
5050.878		Gd II	114
5051.29	P	Fe I	1089
5051.527		Ni I	144
5051.636		Fe I	16
5051.778		Cu II	7
5051.900		Cr I	8
5052.122		C I	12
5052.879		Ti I	199
5052.97	P	Fe I	585
5053.300		W I	1
5054.070		Ti I	171,294
5054.647		Fe I	884
5056.00		Fe I	1149
5056.020		Si II	5
5056.27		K II	3
5056.353		Si II	5
5056.856		Fe I	1111
5057.03		Hf II	71
5057.49		Fe I	1067,1150
5057.83	P	Fe I	1185
5058.00		Fe I	967
5058.03		Ni I	141
5058.18		Hf II	37
5058.50		Fe I	884
5060.079		Fe I	1,1095
5060.635		Cu II	1
5061.794		Fe II	
5062.07		A II	6
5062.112		Ti I	199
5062.862		Gd II	64
5062.91		La II	50
5063.296		Fe I	1066
5063.30		Fe III	5
5064.068		Ti I	294
5064.321		Sc I	13
5064.654		Ti I	5
5064.69		Au I	1
5064.92		Zr I	62
5064.95	P	Fe I	1095
5065.020		Fe I	1094
5065.201		Fe I	883
5065.448		Cu II	11
5065.910		Cr I	60
5065.985		Ti I	110
5066.28	P	Fe I	882
5066.99		La II	162
5067	P	N V	6
5067.082		Cu II	7
5067.162		Fe I	1092
5067.714		Cr I	60
5067.82		Ni I	141
5068.10		Cl II	16
5068.290		Cr I	20
5068.332		Ti I	294
5068.774		Fe I	383
5069.12		Ti II	113
5069.351		Ti I	199
5069.60	P	Fe I	211
5070.249		Sc I	13
5070.957		Fe II	
5071.023		Gd II	114
5071.23		Hf II	23
5071.40	P	Co I	14
5071.475		Ti I	110
5072.077		Fe I	1089
5072.30		Ti II	113
5072.690		Fe I	1095
5072.920		Cr I	8
5073	P	N IV	17
5073.60		N II	10
5073.78		Fe III	5
5074.063		Fe II	205
5074.757		Fe I	1094
5075.17	P	Fe I	1089
5075.304		Ce II	14
5075.814		Sc I	13
5075.829		Fe II	
5075.92		Hf II	16
5076.15		Cr II	201
5076.288		Fe I	1089
5076.321		Ni I	143
5077.410		Co I	184
5078.25		Cl II	16
5078.28		Zr I	62
5078.53	P	Fe I	744
5078.711		Cr I	
5079.002		Fe I	1092
5079.226		Fe I	66
5079.65		Hf II	71
5079.681		Ce II	15
5079.742		Fe I	16
5079.961		Ni I	60
5080.21		La II	80
5080.44		Hf II	83
5080.523		Ni I	143
5080.95	P	Fe I	585
5081.111		Ni I	194
5081.39	P	Ti I	109
5081.554		Sc I	13
5081.86	P	Fe I	962
5081.920		Fe II	221
5082.354		Ni I	130
5082.68	P	Fe I	466
5083.342		Fe I	16
5083.713		Sc I	13
5084.081		Ni I	162
5084.55	P	Fe I	932
5085.02		Al II	43
5085.333		Ti I	109
5085.479		Ni I	130
5085.547		Sc I	13
5085.68	P	Fe I	1093
5085.695		Co I	14
5085.824		Cd I	2
5085.93	P	Fe I	963
5086.69		Fe III	5
5086.77	P	Fe I	1067
5086.951		Sc I	13
5087.055		Ti I	109
5087.25		Fe II	
5087.42		Y II	20
5088.16	P	Fe I	1066
5088.260		Cu II	6
5088.534		Ni I	190
5088.956		Ni I	162
5089.278		Fe II	
5089.837		Nd II	46
5090.55		A II	122
5090.56		La II	100
5090.787		Fe I	1090
5091.14		Cr II	201
5091.282		Co I	14
5091.72	P	Fe I	745
5091.73	P	Fe I	717
5091.890		Cr I	20
5092.251		Gd II	114
5092.797		Nd II	48
5093.41		Cr I	20
5093.470		Fe II	205
5093.646		Fe II	
5093.65		Al II	43
5094.416		Ni I	164
5094.955		Co I	92
5096.063		Gd II	59
5096.17	P	Fe I	1242
5096.716		Sc I	13
5096.874		Ni I	111
5096.998		Fe I	1092

I A	Type	Element	Multiplet No.
5097.29		Cr II	24
5097.375		Fe II	
5098.34		Cl II	16
5098.38		Gd II	114
5098.594		Fe I	984
5098.703		Fe I	66
5099.091		Fe I	965
5099.228		Sc I	13
5099.30		Cl II	16
5099.322		Ni I	141
5099.946		Ni I	161
5100.34		Al II	43
5100.66	P	Fe II	35
5100.704		Fe II	
5100.706		Fe III	
5100.840		Fe II	185
5100.937		Gd II	114
5100.95		Fe II	
5101.121		Sc I	13
5101.48		Fe II	
5102.24	P	Fe I	65
5102.971		Ni I	49
5103.04		Cl II	16
5103.30		S II	7
5103.45		Gd I	6
5104.03	P	Cr II	38
5104.038		Fe I	465
5104.08		Cl II	16
5104.21		Fe I	1092
5104.45		N II	34
5104.47	P	Fe I	1090
5105.541		Cu I	2
5105.80		As II	4
5106.23		La I	9
5106.233		V II	127
5107.406		Gd II	81
5107.452		Fe I	16
5107.54		La II	164
5107.645		Fe I	36
5107.70		Cr I	19
5107.80		As II	6
5108.903		Co I	181
5108.91		Gd II	114
5108.93		Cr I	60
5109.427		Ti I	109
5109.662		Fe I	1089
5110.36	P	Fe I	790
5110.382		Pr II	38
5110.414		Fe I	1
5110.43		Cr II	199
5110.61		Hf II	106
5110.751		Cr I	60
5110.768		Pr II	35
5111.930		Gd II	114
5112	P	O VI	12
5112.28		Zr II	95
5112.490		Cr I	19
5113.130		Cr I	60
5113.232		Co I	91
5113.36		Cl II	16
5113.448		Ti I	109
5114	P	O V	1
5114.07		C II	51
5114.10		Fe III	5
5114.52	P	Fe I	1242
5114.55		La II	36
5115.397		Ni I	177
5115.788		Fe I	789
5116.06		Cr II	24
5116.700		Sm II	56
5117.107		Fe II	
5117.175		Ce II	23
5117.937		Mn I	32
5119.12		Y II	20
5119.55		C II	51
5119.90	P	Fe I	960
5120.34	P	Fe II	35
5120.420		Ti I	288
5120.89	P	Fe I	1150
5121.570		Ni I	177
5121.646		Fe I	1095
5121.69		C II	12
5121.96	P	Fe I	745
5122.082		Ti I	230
5122.121		Cr I	19
5122.767		Co I	170
5122.99		La II	36
5123.21		Y II	21
5123.28	P	Fe I	1150
5123.465		Cr I	20
5123.723		Fe I	16
5124.05	P	Fe II	167
5124.17	P	Fe I	1035
5124.60	P	Fe I	585
5124.718		Co I	197
5124.98		Zr II	87
5125.130		Fe I	1090
5125.211		Ni I	160
5125.56		Gd II	99
5125.715		Co I	181
5125.84		A II	122
5126.13		S II	57
5126.19	P	Fe II	53
5126.201		Co I	170
5126.218		Fe I	1089
5126.598		Fe I	961
5127.32		Fe III	5
5127.363		Fe I	16
5127.367		Ti I	230
5127.68	P	Fe I	1
5127.866		Fe II	167
5128.03		Ni I	113
5128.53		Hf II	58
5128.530		V I	123
5129.143		Ti II	86
5129.383		Ni I	159
5129.520		Pr II	38
5129.658		Fe I	965
5130.28		Gd II	115
5130.389		Ni I	177
5130.53		O I	29,39
5130.596		Nd II	75
5130.91	P	Fe I	1149
5131.28	P	Ti II	86
5131.475		Fe I	66
5131.770		Ni I	114
5132.19		V II	127
5132.67	P	Fe II	35
5132.931		Ti I	230
5132.96		C II	16
5133.22	P	Fe I	818
5133.29		C II	16
5133.42		Zr I	27
5133.467		Co I	180
5133.692		Fe I	1092
5135.10		Lu I	2
5135.125		Pr II	37
5136.09		Fe I	1036
5136.47		Ta I	5
5136.788		Fe II	35
5137.075		Ni I	48
5137.09		Cr II	201
5137.26		C II	16
5137.388		Fe I	1090
5137.94		Cr I	207
5138.431		V I	123
5138.71		Cr I	19
5139.21		C II	16
5139.255		Ni I	129
5139.260		Fe I	383
5139.468		Fe I	383
5139.654		Cr I	207
5140.839		Gd II	115
5141.55	P	Fe I	930
5141.63		Ta I	6
5141.750		Fe I	114
5141.84		A II	37
5142.263		Cr I	60
5142.33		S II	1
5142.541		Fe I	1090,1092
5142.763		Ru I	11
5142.771		Ni I	161
5142.932		Fe I	16
5142.98	P	Ni I	113
5143.49		C II	16
5143.73	P	Fe I	65
5144.413		Al II	68
5144.47	P	Cr II	38
5144.672		Cr I	60
5144.875		Al II	68
5144.9376		Ne I	34
5144.998		Al II	68
5145.011		Ne I	34
5145.105		Fe I	66
5145.16		C II	16
5145.36		A II	13
5145.42		La I	9
5145.465		Ti I	109
5145.654		Al II	68
5145.73	P	Fe I	931
5146.06		O I	28,39
5146.12	P	Fe II	35
5146.30	P	Fe I	1150
5146.478		Ni I	162
5146.753		Co I	170
5147.09		Fe II	
5147.483		Ti I	4
5148.061		Fe I	1090
5148.19	P	Fe II	52
5148.234		Fe I	1095
5148.65		Ni I	158
5148.724		V I	123
5148.838		Na I	8
5149.13		Mn I	32
5149.33		Fe III	
5149.538		Fe II	
5149.796		Co I	39
5149.841		Gd II	115
5150.19	P	Fe I	789
5150.843		Fe I	16
5150.86		Al III	14
5150.890		Mn I	32
5150.93	P	Fe II	35
5151.08		C II	16
5151.83		Cr I	19
5151.87		V II	196
5151.915		Fe I	16
5152.185		Ti I	4
5152.20		P II	7
5153.235		Cu I	7
5153.402		Na I	8
5153.49		Cr II	21
5154.061		Ti II	70
5154.40	P	Fe II	35
5155.136		Ru I	10
5155.140		Ni I	206
5155.764		Ni I	210
5155.845		Gd I	6
5156.0		Fe III	5
5156.040		Sr I	11
5156.06		Hf II	83
5156.10		Fe II	
5156.366		Co I	180
5156.74		La II	7
5156.76		Gd II	114
5157.28		V II	127
5157.43		La II	97
5157.993		Ni I	111
5158.187		Al II	58
5158.854		Co I	188
5159.066		Fe I	1091
5159.350		V I	123
5159.93		Fe II	
5159.95	P	Fe I	1095
5160.02		O II	32
5160.105		Gd II	115
5160.824		Fe II	167
5160.896		Gd II	115
5161.18	P	Fe II	35
5161.765		Cr I	60
5162.288		Fe I	1089
5162.34		Cl II	33
5162.38	P	Fe I	210
5162.47		Gd II	140
5162.80		A II	126
5162.93	P	Ni I	159
5163.61		La II	7
5163.74		Fe III	2
5163.90		Al III	19
5164.542		Gd II	97
5164.56		Fe I	1166
5164.56		Hf II	83
5164.69	P	Fe II	167
5164.70	P	Fe I	210
5164.922		Fe I	1033
5165.140		Nd II	77
5165.156		Co I	39
5165.422		Fe I	1089
5165.82		A II	75
5166.227		Cr I	207
5166.286		Fe I	1
5167.28		La II	95
5167.3216		Mg I	2
5167.491		Fe I	37
5167.70	P	Fe I	717
5167.96		Cr I	207
5168.18	P	Fe I	964
5168.19	P	Fe I	960
5168.24		N II	70
5168.63		Cr I	19

I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.
5168.660		Ni I	112	5191.60		Zr II	95	5214.64		Cr I	189
5168.901		Fe I	1	5192.000		Cr I	201	5215.185		Fe I	553
5169.030		Fe II	42	5192.350		Fe I	383	5215.29		Cr I	206
5169.30	P	Fe I	1032	5192.524		Ni I	111	5215.928		V II	55
5169.733		Fe II		5192.621		Nd II	75	5216.17		Cr I	189
5170.08	P	Fe I	1241	5192.75		Si II		5216.278		Fe I	36
5170.08		N II	70	5192.971		Ti I	4	5216.512		Ni I	113
5171.028		Ru I	11	5193.004		V I	125	5216.84		A II	126
5171.13	P	V II	115	5193.03		Cl II	33	5216.99		Fe III	
5171.46		N II	70	5193.43	P	V II	115	5217.36	P	V II	115
5171.599		Fe I	36	5193.488		Cr I	206	5217.395		Fe I	553
5171.62	P	Fe II	35	5193.89		Fe III	5	5217.69	P	Fe I	965
5172.21	P	Fe I	210	5194.043		Ti I	183	5217.83		La II	
5172.32		N II	66	5194.43		Fe III	5	5217.927		Fe I	880
5172.6		Al III	18	5194.57		Hf II	69	5217.93		Cl II	3
5172.6843		Mg I	2	5194.824		V I	125	5218.202		Cu I	7
5172.89		La II	100	5194.943		Fe I	36	5218.51	P	Fe I	1240
5173.002		Fe II	185	5195.110		Pr II	38	5219.008		Co I	170
5173.15		Cl II	33	5195.307		Pr II	38	5219.053		Pr II	37
5173.37		N II	66	5195.394		V I	125	5219.40		Gd I	6
5173.742		Ti I	4	5195.471		Fe I	1092	5219.697		Ti I	4
5173.83		La II	158	5196.100		Fe I	1091	5220.070		Cu I	7
5173.898		Pr II	35	5196.24	P	Fe I	406	5220.113		Pr II	35
5174.46		N II	70	5196.43		Y II	28	5220.297		Gd II	80
5175.71	P	Fe I	1	5196.443		Cr I	207	5220.307		Ni I	114
5175.78	P	Ni I	188	5196.57		Cr I	207	5220.912		Cr I	201
5175.839		Gd II	114	5196.591		Mn I	32	5221.34		Cl II	3
5175.85		Cl II	50,81	5197.165		Ni I	204	5221.43	P	Fe I	1
5175.89		N II	66	5197.216		Mn I	32	5221.75	P	Fe I	628
5176.00		O II	32	5197.569		Fe II	49	5221.753		Cr I	193
5176.085		Co I	92	5197.768		Gd I	6	5222.39		Cr I	206
5176.26	P	Cr II	38	5197.93	P	Fe I	1091	5222.40	P	Fe I	112
5176.28		A II	37	5198.714		Fe I	66	5222.676		Cr I	59
5176.285		Gd II	60	5198.843		Fe I	743	5222.685		Ti I	183
5176.565		Ni I	209	5198.89		S II	57	5223.191		Fe I	880
5177.230		Fe I	930	5199.211		Gd II	115	5223.623		Ti I	183
5177.30		La I	9	5199.50		N II	66	5224.082		Cr I	201
5177.430		Cr I	201	5199.68		V II	55	5224.14	P	Ti I	37
5177.73		Fe III		5200.188		Cr I	201	5224.30	P	Fe I	65
5177.83		Cr I	206	5200.42		Y II	20	5224.301		Ti I	183
5178.104		Gd II	114	5200.549		Gd II	147	5224.541		Cr I	59,193
5178.71	P	Fe II	35	5201.00		S II	39	5224.558		Ti I	183
5178.798		Fe I	1166	5201.096		Ti I	183	5224.680		W I	1
5178.843		Gd II	147	5201.32		S II	39	5224.928		Ti I	183
5178.95	P	Fe II	35	5202.27		Fe I	1090	5224.94		Zr I	27
5179.136		Ni I	202	5202.339		Fe I	66	5224.941		Cr I	201
5179.50		N II	66,70	5202.51		Si II		5225.032		Cr I	201
5179.919		Gd II	100	5202.94		V II	142	5225.533		Fe I	1
5180.065		Fe I	1166	5203.86		P III	5	5225.821		Cr I	58
5180.34		N II	66	5204.14		La II	96	5226.06		Fe I	716
5180.53	P	Fe II	35	5204.46		A II	126	5226.20		La II	96
5181.77		Si II		5204.518		Cr I	7	5226.42	P	Fe I	406
5181.86		Hf I	1	5204.582		Fe I	1	5226.534		Ti II	70
5181.97	P	Fe II	53	5204.95	P	Fe I	407	5226.868		Fe I	383
5181.995		Zn I	7	5205.31	P	Fe I	1112	5226.891		Cr I	193
5183.21		N II	70	5205.73		Y II	20	5227.10		Cr I	59
5183.41		Cr I	19	5206.039		Cr I	7	5227.15	P	Fe I	114
5183.42		La II	36	5206.059		Ti I	276	5227.192		Fe I	37
5183.6042		Mg I	2	5206.15	P	Cr I	59	5227.53		Fe III	
5183.72		Ti II	86	5206.52	P	Cr I	206	5227.70		V II	115
5184.17	P	Fe I	1147	5206.562		Pr II	38	5227.75		Cr I	58
5184.292		Fe I	1089	5206.73		O II	32	5227.87	P	Ti II	103
5184.585		Ni I	159	5206.80	P	Fe I	1095	5228.082		Cr I	193
5184.590		Cr I	201	5207.852		Ti I	183	5228.408		Fe I	1091
5184.97		N II	66	5207.95	P	Fe I	880	5228.427		Nd II	46
5185.09		Si II		5208.07	P	Cr I	59	5229.57		Fe III	113
5185.90		Ti II	86	5208.436		Cr I	7	5229.857		Fe I	553,1090
5186.17		N II	70	5208.601		Fe I	553	5230.210		Co I	39
5186.329		Ti I	183	5209.90	P	Fe I	584	5230.228		Cr I	58
5186.592		Ni I	205	5210.042		Co I	167	5230.363		Co I	187
5186.915		Gd II	114	5210.386		Ti I	4	5230.967		Ti I	215
5187.237		Gd II	114	5210.488		Gd II	115	5231.41		Fe I	787
5187.452		Ce II	15	5210.834		Co I	187	5232.50		Cr II	43
5187.75		Hf II	23	5210.87		Cr II	24	5232.946		Fe I	383
5187.86		Ni I	159	5210.88	P	Cr II	38	5233.817		Ti I	37
5187.922		Fe I	1032	5211.22	P	Ti I	37	5234.088		V I	131
5188.21		La II	95	5211.544		Ti II	103	5234.195		Nd II	74
5188.700		Ti II	70	5211.832		Co I	184	5234.27		La I	10
5188.848		Ca I	49	5211.85		La I	9	5234.28	P	V II	55
5189.61	P	Ti I	215	5212.27		Cr I	189	5234.620		Fe II	49
5189.70		Cl II	33	5212.271		Ti I	215	5235.188		Co I	83
5190.42		N II	66	5212.365		Nd II	44	5235.3		Fe III	113
5190.56		O II	32	5212.61		S II	39	5235.392		Fe I	210,1031
5191.081		Gd II	115	5212.699		Co I	170	5235.45		Ni I	208
5191.41		P II	7	5212.75		Ta I	1	5236	P	N IV	5
5191.448		Nd II	45	5212.997		Ti I	215	5236.189		Fe I	1034
5191.46		Cr II	24	5213.08	P	V II	55	5236.38	P	Fe I	1146
5191.460		Fe I	383	5213.35	P	Fe I	1165	5236.63		Cr I	205
5191.58	P	Fe II	52	5213.80	P	Fe I	962	5237.34		Cr II	43
5191.59		V II	208	5214.127		Cr I	193	5237.35		Cr I	206

λ A	Type	Element	Multiplet No.
5238.25	P	Fe I	962
5238.560		Ti I	37,183
5238.58	P	Fe II	41
5238.971		Cr I	59
5239.823		Sc II	26
5239.942		Ti I	37
5240.36	P	Fe I	584
5240.468		Cr I	237
5240.878		V I	131
5240.94		Cr I	193
5240.97	P	V II	55
5241.19		V II	241
5241.458		Cr I	59
5241.90	P	Fe I	1150
5242.495		Fe I	843
5243.3		Fe III	113
5243.395		Cr I	201
5243.50	P	Cr II	38
5243.798		Fe I	1089
5244.5		C III	4
5245	P	N IV	5
5245.49		A II	40
5245.62	P	Fe I	1149
5245.72	P	Fe I	715
5246.00	P	Fe I	628
5246.143		Ti I	282
5246.574		Ti I	37
5246.75		Cr II	23
5247.052		Fe I	1
5247.10		Hf II	92
5247.293		Ti I	183
5247.564		Cr I	18
5247.921		Co I	39
5248.028		Fe II	
5248.402		Ti I	37,156
5249.099		Fe I	1166
5249.22		V II	220
5249.40		Cr II	23
5249.43		C II	30
5249.585		Nd II	75
5249.6		C III	23
5250.003		Co I	190
5250.212		Fe I	1
5250.650		Fe I	66
5250.816		Nd II	80
5250.95		Ti I	37
5251.180		Gd I	6
5251.49		Ti I	37
5251.738		Pr II	20
5252.04	P	Ti II	103
5252.105		Ti I	4
5252.14		Gd II	99
5253.03	P	Fe I	113
5253.25	P	Fe I	875
5253.479		Fe I	553
5253.49		P II	10
5253.55		C II	30
5253.55		C III	4
5254.652		Co I	187
5254.918		Cr I	201
5254.92	P	Fe II	49
5254.956		Fe I	1
5255.132		Cr I	225
5255.325		Mn I	32
5255.510		Nd II	43
5255.68	P	Fe I	1089
5255.76	P	Fe I	1091
5255.805		Gd I	6
5255.811		Ti I	183
5256.030		Gd II	114
5256.89	P	Fe II	41
5257.07		Cr I	205
5257.36		C II	30
5257.51	P	V II	55
5257.621		Co I	188
5257.65	P	Fe I	788
5258.333		Sc I	23
5259.09	P	Fe I	1149
5259.38		La II	21
5259.62		C II	30
5259.743		Pr II	35
5259.976		Ti I	298
5260.25		Fe III	
5260.375		Ca I	22
5260.44		Hf II	36
5260.771		Mn I	32
5260.91		Al III	13
5260.91		N III	15
5261.49	P	Fe I	406
5261.706		Ca I	22
5261.754		Cr I	237
5262.104		Ti II	70
5262.244		Ca I	22
5262.48	P	Fe II	52
5262.61	P	Fe I	1149
5262.89	P	Fe I	628
5263.314		Fe I	553
5263.483		Ti I	183
5263.750		Cr I	309
5263.874		Fe I	788
5263.99		V II	115
5264.14		Mg II	17
5264.152		Cr I	18
5264.239		Ca I	22
5264.49	P	V II	55
5264.801		Fe II	48
5264.95		Hf II	70
5265.160		Cr I	201
5265.25	P	Fe I	407
5265.42	P	Fe I	1145
5265.523		Co I	38
5265.557		Ca I	22
5265.710		Ce II	23
5265.722		Cr I	18
5265.748		Ni I	141
5265.786		Co I	170
5265.94	P	Fe I	210
5265.967		Ti I	156
5266.118		V I	139
5266.302		Co I	172
5266.49	P	Ti I	36
5266.506		Co I	83
5266.562		Fe I	383
5267.10		Cr II	38
5267.28	P	Fe I	1146
5267.322		Gd II	60
5268.06		O III	19
5268.348		Ni I	273
5268.498		Co I	172
5268.62		Ti II	103
5269.15		Fe III	112
5269.541		Fe I	15
5269.93		Ti I	156
5270.06	P	Fe I	877
5270.270		Ca I	22
5270.322		Be II	3
5270.360		Fe I	37
5270.59		N III	15
5270.843		Be II	3
5271.18		La I	4
5271.26	P	V II	55
5272.0		Fe III	113
5272.010		Cr I	225
5272.413		Fe II	185
5272.56		C III	4
5272.60		N III	15
5272.86		Fe III	
5273	P	N V	4
5273.176		Fe I	553
5273.379		Fe I	114
5273.431		Nd II	75
5273.439		Cr I	201
5273.62	P	Fe I	1147
5274.244		Ce II	15
5274.99		Cr II	43
5275.00		Fe I	1029
5275.08		O I	27
5275.11	P	Cr I	192
5275.171		Cr I	94
5275.30	P	Fe I	742
5275.54		Re I	1
5275.65		V II	195
5275.689		Cr I	94
5275.994		Fe II	49
5276.03		Cr I	94
5276.183		Co I	190
5276.2		Fe III	113
5276.42		Al II	67
5276.81		Al II	67
5276.879		Nd II	81
5277.31	P	Fe I	1149
5277.32	P	Fe I	584
5277.40		Zr I	27
5277.59	P	Fe I	983
5277.68		Al II	67
5278.10		S I	4
5278.262		Cr I	309
5278.265		Fe II	225
5278.62		Al II	95
5278.70		S I	4
5278.955		Fe II	184
5278.99		S I	4
5279	P	O VI	14
5279.11		La II	90
5279.65	P	Fe I	584
5279.92		Cr II	43
5280.00		V II	195
5280.08		Cr II	43
5280.21		Al II	95
5280.289		Cr I	192
5280.364		Fe I	880
5280.62	P	V II	55
5280.631		Co I	172
5280.91	P	Fe I	210
5281	P	N IV	5
5281.18	P	Fe I	1240
5281.18		N I	14
5281.692		Ni I	231
5281.796		Fe I	383
5282.1		Fe III	113
5282.378		Ti I	74
5282.52		N III	15
5283.076		Gd I	6
5283.441		Ti I	156
5283.628		Fe I	553
5283.77		Al II	95
5284.092		Fe II	41
5284.27	P	Fe I	875
5284.380		Ti I	74
5284.416		Fe I	842
5284.62	P	Fe I	1032
5284.85		Fe III	
5285.12	P	Fe I	1166
5285.34		Ca II	14
5285.38		Cr I	285
5285.48		Cl II	32
5285.60	P	Fe I	961
5285.63		Cr I	192
5285.752		Sc I	23
5285.85		Al II	102
5286.42	P	V II	54
5286.74		Fe III	110
5286.92		A II	13
5287.188		Cr I	225
5287.574		Co I	175
5287.62		Cr I	309
5287.785		Co I	187
5288.21	P	Ni I	202
5288.24	P	Fe I	818
5288.31		V II	195
5288.38	P	Fe I	406
5288.533		Fe I	929
5289	P	O VI	16
5289.27		Cr I	192
5289.28		Ti I	36
5289.82		Y II	20
5289.98		Hf II	100
5290.74		V II	207
5290.79	P	Fe I	1147
5290.83		La II	6
5291	P	O VI	18
5291.78		Fe III	
5292	P	O VI	17
5292.10		Pr II	24
5292.630		Pr II	37
5292.861		Mn I	36
5292.865		Cr I	205
5293.03	P	Fe I	1165
5293.168		Nd II	75
5293.383		Cr I	192
5293.973		Fe I	1031
5294.216		Mn II	11
5294.555		Fe I	875
5294.97		Si II	
5295.292		Mn II	11
5295.30	P	Sc II	22
5295.316		Fe I	1146
5295.781		Ti I	74
5296.09		P II	7
5296.48		A II	110
5296.686		Cr I	18
5296.968		Mn II	11
5297.236		Ti I	156
5297.360		Cr I	94
5297.86		N III	15
5297.976		Cr I	94
5298	P	O VI	15
5298.06		Hf II	49
5298.269		Cr I	18
5298.429		Ti I	281

I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.
5298.44	P	Cr I	94	5322.78	P	Cr II	24	5346.56	P	Fe II	49
5298.789		Fe I	875	5322.81		V II	240	5347.499		Co I	196
5298.93		N III	15	5323.51	P	Fe I	113	5347.71	P	Ni I	145
5299.00		O I	26	5323.958		Ti I	36	5347.806		Ce II	227
5299.278		Mn II	11	5324.185		Fe I	553	5348.069		Mn I	36
5299.85		Hf II	14	5324.26		Hf II	36	5348.319		Cr I	18
5299.9		Fe III	113	5324.61		Al II	101	5348.40		Hf II	22
5300.012		Ti I	74	5325.276		Co I	192	5348.67		Gd I	6
5300.41	P	Fe I	1240	5325.559		Fe II	49	5349.08		Ta I	5
5300.749		Cr I	18	5325.71	P	V II	54	5349.294		Sc I	17
5301.042		Co I	39	5325.949		Co I	194	5349.472		Ca I	33
5301.33	P	Fe I	1162	5326.154		Fe I	407,785	5349.702		Sc I	4
5301.67		Gd I	6	5326.247		Co I	175	5349.742		Fe I	1163
5301.936		Sc I	4	5326.793		Fe I	1147	5349.75		V II	54
5301.97		La II	36	5327.25	P	Fe I	875	5350.10		Zr II	115
5302.279		Nd II	80	5327.45	P	N II	69	5350.36		Zr II	115
5302.307		Fe I	553	5327.86	P	Fe I	1145	5350.37		V II	54
5302.320		Mn II	11	5328.042		Fe I	15	5350.38		Gd I	7
5302.5		Fe III	113	5328.339		Cr I	94	5350.527		Tl I	1
5302.62		La II	86	5328.38		Ta I	2	5351.072		Ti I	300
5302.76		Gd I	6	5328.534		Fe I	37	5351.21		N II	69
5303.26		V II	54	5328.70		N I	13	5351.85	P	Ni I	177
5303.419		Fe II	225	5328.70	P	Ni I	129	5352	P	O V	13
5303.43		Gd II	80	5328.98		O I	12	5352.046		Co I	172
5303.54		La II	36	5329.12		Cr I	94	5353.26		Gd I	7
5304.11	P	Fe I	983	5329.59		O I	12	5353.386		Fe I	1062
5304.211		Cr I	225	5329.719		Cr I	94	5353.415		Ni I	70
5304.26	P	Fe II	184	5329.994		Fe I	1028	5353.500		Co I	198
5304.923		Gd II	62	5330.582		Ce II	13	5353.534		Ce II	15
5305.3	P	O IV	11	5330.66		O I	12	5353.78		Fe III	
5305.41	P	Fe I	877	5330.779		Ne I	9	5354.01	P	Co I	91
5305.77		A II	93	5331.20	P	Fe I	817	5354.66	P	Cr II	29
5305.85		Cr II	24	5331.456		Co I	39	5354.67		Ta I	6
5306.6		Fe III	113	5331.48	P	Fe I	210	5355.752		Sc I	19
5307.121		Tm I		5331.54		As II	3	5356.100		Sc I	17
5307.281		Cr I	237	5332.65		V II	54	5356.14		Cl II	
5307.30		Ca II	14	5332.652		Co I	170	5356.77		N I	13
5307.30		Gd I	6	5332.673		Fe I	1031	5356.976		Nd II	80
5307.365		Fe I	36	5332.903		Fe I	36	5357.195		Sc II	30
5307.53	P	Mn I	36	5333.15	P	Fe I	1023	5357.35		V II	54
5308.44		Cr II	43	5333.30		Gd I	7	5357.790		Gd II	62
5308.71	P	Fe I	1091	5333.647		Co I	190	5358.10	P	Fe I	628
5309.267		Ru I	10	5333.70		Cl II	15	5359.200		Co I	194
5309.47		Cr I	285	5333.77	P	Fe I	464	5361.174		Nd II	46
5310.219		Co I	196	5334.228		Sc II	30	5361.35		Ba II	6
5310.70		Cr II	43	5334.32	P	Fe I	1064	5361.474		Nd II	74
5310.76		Al II	94	5334.804		Mn I	36	5361.637		Fe I	1143
5311.42		Zr I	27	5334.821		Co I	191	5361.724		Ti I	35
5311.461		Nd II	80	5334.88		Cr II	43	5362.4	P	O IV	11
5311.60		Hf II	37	5336.163		Co I	191	5362.56		Zr I	27
5311.78		Zr II	95	5336.7		C II	11	5362.69		S II	61
5312.32		Al II	94	5336.809		Ti II	69	5362.781		Co I	198
5312.650		Co I	197	5337.713		Fe II	48	5362.864		Fe II	48
5312.878		Cr I	225	5337.79		Cr II	43	5362.98		Cr I	258
5313.239		Ti I	74	5338.326		Ti I	35	5363.80		Fe III	
5313.41		Fe I	1239	5338.66		N II	69	5364.874		Fe I	1146
5313.43		N II	69	5339.29		Ca II	20	5365.403		Fe I	786
5313.59		Cr II	43	5339.40	P	Fe I	1162	5366.651		Ti I	35
5313.76	P	Ti II	81	5339.528		Co I	199	5367.470		Fe I	1146
5313.839		Fe I	1238	5339.92		Fe III		5367.53	P	V II	53
5314.45		N III	15	5339.935		Fe I	553	5367.78		Cr I	258
5315.07		Fe I	1147	5340.20		N II	69	5367.95	P	Ti II	80
5315.618		Fe II	225	5340.437		Cr I	225	5368.10	P	Cr II	29
5315.78	P	Fe I	877	5340.66		La II	91	5368.546		Cr I	258
5316.07		Al II	94	5340.68		Ti I	36	5368.904		Co I	167
5316.07		P II	6	5340.92		Fe III		5368.97		Pt I	6
5316.609		Fe II	49	5341.026		Fe I	37	5369.25	P	Cr II	29
5316.772		Co I	192	5341.040		Sc I	19	5369.591		Co I	39
5316.777		Fe II	48	5341.065		Mn I	4	5369.635		Ti I	
5317.095		Mn I	36	5341.096		Ne I	9	5369.965		Fe I	1146
5317.394		Fe I	584	5341.22		V II	239	5370.356		Cr I	
5317.53	P	Fe I	1032	5341.328		Co I	199	5371.43	P	Fe I	1163
5318.025		Fe II		5341.492		Ti I	316	5371.48		Cr I	258
5318.04	P	Fe I	406	5342.05	P	Sc II	30	5371.493		Fe I	15
5318.267		Fe II		5342.703		Co I	190	5371.621		Gd II	60
5318.337		Sc II	22	5342.961		Sc I	4	5371.84		Al II	42
5318.41		Cr II	23	5343	P	O V	13	5371.935		Nd II	79
5318.61	P	V II	53	5343.00		Gd I	7	5372.216		Gd II	99
5318.775		Cr I	225	5343.284		Ne I	9	5372.66		N I	13
5319.22	P	Fe I	1029	5343.383		Co I	190	5373.704		Fe I	1166
5319.818		Nd II	75	5344.570		Co I	191	5373.715		Cr I	258,302
5320.048		Fe I	877	5344.73		P II	6	5374.78	P	Fe I	785
5320.70		S II	38	5344.761		Cr I	225	5375.346		Sc I	19
5320.78		Y II	20	5345.61	P	Cr I	225	5375.393		Gd II	99
5320.96		N II	69	5345.67		S II	38	5375.68		Fe III	
5321.106		Fe I	1165	5345.807		Cr I	18	5376	P	O V	13
5321.496		Gd I	6	5346.12	P	Cr II	24	5376.59	P	Ti I	3
5321.777		Gd I	6	5346.30		Hf II	92	5376.849		Fe I	1132
5322.049		Fe I	112	5346.34	P	Fe I	817	5377.08		La II	95
5322.778		Pr II	35	5346.54		Cr II	23	5377.628		Mn I	42

I A	Type	Element	Multiplet No.
5378.07	P	Cr II	29
5378.12		P II	23
5379.19	P	Ti II	102
5379.580		Fe I	928
5380.242		C I	11
5380.97		La II	56
5381.020		Ti II	69
5381.105		Co I	56
5381.262		Pr II	37
5381.77		La II	91
5381.776		Co I	196
5381.91		La II	91
5382.52	P	Fe II	184
5382.750		Fe I	741
5382.96	P	Ti I	155
5383.374		Fe I	1146
5383.82		N II	23
5384.22	P	Fe I	817
5384.634		Ti I	35
5384.89		V II	53
5385.14		Zr I	26
5385.28		Cr I	
5385.58	P	Fe I	927
5386.341		Fe I	1064
5386.87		P II	6
5386.958		Fe I	875
5386.978		Cr I	191
5387.136		Fe II	
5387.35		Fe III	
5387.51		Fe I	1031
5387.573		Cr I	191
5388.350		Ni I	70
5388.48		Al II	34
5388.521		Mn I	36
5389.180		Ti I	35
5389.461		Fe I	1145
5389.996		Ti I	155
5390.394		Cr I	191
5391.06	P	Ti I	155
5391.350		Cr I	191,302
5391.36		Hf II	48
5391.493		Fe I	1062
5391.60		Ba II	6
5391.78	P	Fe I	270
5392.075		Sc I	19
5392.12		Cl II	28
5392.371		Ni I	250
5392.95	P	Cr II	29
5393.174		Fe I	553
5393.391		Ce II	24
5393.659		Gd II	100
5394.321		Gd II	63
5394.674		Mn I	1
5394.682		Fe I	1031
5395.25		Fe I	1143
5395.41	P	Cr II	29
5396.3		Ti II	80
5396.59	P	Ti II	102
5396.600		Ti I	3
5396.90	P	Fe I	464
5397.093		Ti I	155
5397.131		Fe I	15
5397.60		A II	
5397.60		Fe I	841
5398.285		Fe I	1145
5398.82		Ti IV	
5399.489		Mn I	42
5400.509		Fe I	1145
5400.5620		Ne I	3
5400.608		Cr I	191
5400.67		S II	61
5401.05		Mg II	24
5401.27	P	Fe I	1146
5401.32		Ti I	35
5401.945		V I	130,139
5402.000		Co I	195
5402.113		Fe II	
5402.27		Fe III	
5402.51		Ta I	1
5402.57		Lu I	2
5402.69		A II	
5402.78		Y II	35
5403.823		Fe I	1029
5404.023		Ti I	259
5404.12	P	Fe I	1145
5404.144		Fe I	1165
5404.87		O I	53
5404.95		Ta I	13
5405.004		Cr I	191
5405.35	P	Fe I	1162

I A	Type	Element	Multiplet No.
5405.778		Fe I	15
5406.36	P	Fe I	1026
5406.77	P	Fe I	1148
5407.424		Mn I	4
5407.44		A II	
5407.520		Co I	192
5407.62		Cr II	23
5408.119		Co I	112
5408.59		O I	53
5408.842		Fe II	184
5408.940		Ti I	3
5409.125		Fe I	1147
5409.224		Ce II	23
5409.28	P	Cr II	29
5409.609		Ti I	155
5409.66		P II	6
5409.791		Cr I	18
5410	P	O VI	13
5410.39	P	Cr II	29
5410.76		O I	51,52
5410.913		Fe I	1165
5411.227		Ni I	222
5411.39	P	Fe I	670
5411.524		He II	2
5412.56	P	Fe I	1237
5412.80	P	Fe I	1162
5413.47		Ta I	5
5413.687		Mn I	42
5414.089		Fe II	48
5414.91	P	Fe I	874
5415.201		Fe I	1165
5415.277		V I	130
5416.381		Nd II	80
5417	P	O V	13
5417.03		Fe I	1148
5418.01		Zr II	94
5418.802		Ti II	69
5419.189		Ti I	258
5419.19		Ta I	6
5419.36		Cr II	22,29
5419.876		Gd II	99
5420.362		Mn I	4
5420.90		Cr II	23
5421.05		Ba II	6
5421.40	P	Fe I	874
5421.559		Nd II	79
5421.85	P	Fe I	1183
5422.15	P	Fe I	1145
5422.47		Ti II	80
5423.25		Cl II	2
5423.52		Cl II	2
5423.73	P	Fe I	927
5423.82		La II	7
5424.072		Fe I	1146
5424.15	P	Fe I	1026
5424.36		Cl II	2
5424.551		Ba I	9
5424.56	P	Ni I	231
5424.654		Ni I	70
5425.269		Fe II	49
5425.29	P	Cr II	29
5425.621		Co I	196
5425.93		P II	6
5426.256		Ti I	3
5427.832		Fe II	
5428.64		S II	6
5428.71	P	Fe I	1032
5428.79		Ba II	9
5428.85		Ni I	161
5429.139		Ti I	259
5429.43	P	Fe I	1029
5429.52	P	Fe I	1062
5429.699		Fe I	15
5429.83	P	Fe I	1162
5430.14		Fe III	
5430.41	P	Cr II	29
5431.526		Nd II	80
5432	P	O V	13
5432.09		V II	53
5432.318		Ti I	265
5432.347		Cr I	204
5432.548		Mn I	1
5432.77		S II	6
5432.950		Fe I	1143
5432.98	P	Fe II	55
5434.527		Fe I	15
5435.16		O I	11
5435.17	P	Fe I	1161
5435.27		Ta I	9
5435.76		O I	11

I A	Type	Element	Multiplet No.
5435.79	P	Fe II	48
5435.871		Ni I	70
5436.299		Fe I	1161
5436.594		Fe I	113
5436.703		Ti I	51
5436.80		Fe III	110
5436.83		O I	11
5437.19	P	Fe I	1145
5438.04	P	Fe I	1237
5438.310		Ti I	108
5438.41		Si II	
5439.30		V II	53
5440.53	P	Ti I	107
5441.17		Gd II	146
5441.321		Fe I	1144
5442.274		Nd II	76
5442.413		Cr I	204
5443.41	P	Fe I	1059
5443.42		Cl II	2
5443.88		Fe III	110
5444.07		Hf II	69
5444.096		Mn I	31
5444.25		Cl II	2
5444.585		Co I	196
5444.99		Cl II	2
5445.045		Fe I	1163
5445.97	P	Fe II	53
5446.46	P	Ti II	68
5446.57	P	Cr II	35
5446.58	P	Fe I	1144
5446.593		Ti I	3,259
5446.76		Cr I	204
5446.87	P	Fe I	37
5446.920		Fe I	15
5447.59		La II	112
5448.882		Ti I	259
5449.155		Ti I	107
5450.66		P II	23
5450.836		Sr I	9
5451.115		Nd II	
5451.60	P	Fe II	184
5451.965		Ti I	265
5452.03		Ti II	109
5452.119		Fe I	870
5452.12		N II	29
5452.305		Co I	175
5453.255		Ni I	231
5453.338		Co I	194
5453.646		Ti I	108
5453.81		S II	6
5453.98	P	Fe I	1064
5454.05	P	Ti II	68
5454.26		N II	29
5454.41		A II	
5454.573		Co I	195
5455.09	P	Fe I	627
5455.14		La I	3
5455.433		Fe I	1145
5455.613		Fe I	15
5455.80		Cr II	50
5455.815		Nd II	83
5456.11		Si II	
5456.27		Cl II	2
5456.48		Fe I	817
5457.02		Cl II	2
5457.10		V II	53
5457.47		Cl II	2
5457.471		Mn I	4
5458.68		La II	99
5460.502		Ti I	3
5460.644		Mn I	31
5460.742		Hg I	1
5460.8		Fe III	68
5460.909		Fe I	464
5461.31		Ta I	4
5461.54		Fe I	1145
5461.80	P	Fe I	817
5462.487		Ni I	192
5462.62		N II	29
5462.970		Fe I	1163
5463.282		Fe I	1163
5463.38		Hf II	14
5463.974		Cr I	204
5464.286		Fe I	1030
5464.36	P	Cr II	35
5464.37		La II	49
5465.04	P	Fe I	840
5466.021		Fe II	
5466.404		Fe I	1144
5466.46		Fe III	

I A	Type	Element	Multiplet No.
5466.46		Y I	12
5466.55		S II	11
5466.94		Fe II	
5466.993		Fe I	784,817
5467.76	P	Fe I	741
5468.101		Ni I	192
5468.37	P	Ce II	24
5468.44	P	Ti II	102
5468.92		Si II	
5469.09	P	Fe I	1131
5469.29	P	Fe I	1143
5469.305		Co I	56
5469.72		Gd II	60
5470.17		Fe I	1144
5470.460		Co I	175
5470.50		Ti I	108
5470.53		Gd II	63
5470.638		Mn I	4
5470.81	P	Fe II	52
5471.198		Ti I	106
5472.297		Ce II	24
5472.63		Cr II	50
5472.696		Ti I	107
5472.720		Fe I	1108
5473	P	O V	13
5473.18	P	Fe I	1064
5473.40		Y II	27
5473.517		Ti I	259
5473.517		Ti II	109
5473.59		S II	6
5473.908		Fe I	1062
5474.09	P	Fe I	1314
5474.228		Ti I	108
5474.449		Ti I	259
5474.734		Nd II	82
5475.57		Ni I	159
5476.298		Fe I	1029
5476.571		Fe I	1062
5476.69		Lu II	2
5476.906		Ni I	59
5477.089		Co I	175
5477.45	P	Cr II	50
5477.67	P	Fe II	49
5477.695		Ti I	265
5477.82		Zr II	115
5478.13		N II	29
5478.35		Cr II	50
5478.48		Fe I	1062
5478.6		C II	34
5479.95	P	Fe I	1282
5480.10		N II	29
5480.30		Ba II	9
5480.502		Cr I	204
5480.72		La II	90
5480.75		Y II	27
5480.865		Sr I	9
5480.872		Fe I	1062
5480.893		Ni I	191
5481.252		Fe I	1058
5481.396		Mn I	4,31
5481.426		Ti I	265
5481.451		Fe I	1061
5481.862		Ti I	106
5481.989		Sc I	16
5482.26	P	Fe I	873
5482.27		La II	4
5482.471		V I	2
5483.111		Fe I	1061
5483.354		Co I	39
5483.55		Li II	1
5483.56		P II	23
5483.962		Co I	175
5484.618		Sc I	16
5485.6		Fe III	68
5485.65		Li II	1
5485.699		Nd II	79
5486.136		Sr I	9
5486.6		O I	63
5486.86		La II	68
5487.00		V II	53
5487.16		Fe I	1143
5487.49	P	Fe I	870
5487.52	P	Fe I	1064
5487.747		Fe I	1025
5487.915		V I	129
5488.14	P	Fe I	1183
5488.210		Ti I	265
5488.97	P	Cr II	35
5489.85	P	Fe I	1148
5490.151		Ti I	107
5490.65	P	Ti II	68
6490.840		Ti I	3
5491.84		Fe I	1031
5492.43		Ti IV	
5492.8		O I	62
5492.82	P	Ti II	68
5493.22		Hf II	113
5493.33	P	Fe I	873
5493.46		La II	4
5493.608		Fe I	1061
5493.850		Fe I	464,1062
5494.35	P	V II	53
5494.468		Fe I	1024
5494.726		Ti I	108
5494.890		Ni I	231
5495.682		Co I	166
5495.70		N II	29
5495.8720		A I	14
6496.020		V I	2
5496.24		Si II	
5496.57	P	Fe I	1281
5497.42		Y II	27
5497.519		Fe I	15
5497.70	P	Fe II	204
5497.86	P	Cr II	22
5497.92	P	Ti I	51
5498.18		S I	12
5498.19	P	Fe II	24
5499.39	P	Ni I	176
5499.60	P	Fe I	1159
5499.72		P II	6
5500.43		Gd II	99
5500.61	P	Cr II	35
5501.34		La I	3
5501.469		Fe I	15
5501.54		S I	12
5502.05		Cr II	50
5502.88		Al II	78
5503.18		Cr II	50
5503.397		Fe II	
5503.897		Ti I	287
5504.120		Ni I	175
5604.184		Sr I	9
5504.21		Mn I	31
5505.75	P	Fe I	1162
5505.869		Mn I	4
5505.893		Fe I	1145
5506.268		Fe II	
5506.51		Mo I	4
5506.782		Fe I	15
5507.01		S I	12
5507.15		P II	23
5507.753		V I	129
5508.11		O III	16
5508.60		Cr II	50
5508.88	P	Cr I	224
5509.67		S II	6
5509.91		Y II	19
5510.001		Ni I	190
5510.174		Mn I	31
5510.23	P	Fe I	1023
5510.58		Gd II	132
5510.68		Cr II	23
5511.795		Ti I	108,275
5512.085		Ce II	24
5512.277		Fe I	1143
5512.40	P	Fe I	1148
5512.529		Ti I	106
5512.69		Cr I	121
5512.71		O I	25
5512.979		Ca I	48
5513.86	P	Fe I	925
5514.215		Sc I	15
5514.350		Ti I	106
5514.536		Ti I	106
5514.712		W I	1
5514.80		Ni I	189
5515.083		V I	2
5515.371		V I	1
5515.990		Co I	195
5516.09		Sm I	2
5516.29	P	Fe I	1057
5516.771		Mn I	4
5517.08		Fe I	1109
5518.11	P	Ti I	265
5518.491		Ce II	26
5518.57	P	Fe I	1314
5518.74		S II	61
5519.047		Ba I	9
5519.72	P	Fe II	204
5519.83	P	Fe II	52
5520.19	P	Fe I	1144
5520.496		Sc I	15
5521.14	P	Fe I	839
5521.28	P	Fe I	1162
5521.44		Ni I	175
5521.56	P	Y II	27
5521.765		Sr I	9
5522.46		Fe I	1108
5523.310		Co I	112
5524.25	P	Fe I	1059
5524.35		Hf II	25
5524.990		Co I	192
5525.14	P	Fe II	56
5525.48	P	Fe I	1107
5525.552		Fe I	1062
5525.90	P	Cr II	22
5526.06		Sc I	18
5526.22		S II	11
5526.26		N II	63
5526.809		Sc II	31
5527.07	P	Fe I	464
5527.54		Y I	12
5527.606		Ti I	265
5527.72		V I	1
5528.3876		Mg I	9
5528.3986		Mg I	9
5528.4094		Mg I	9
5528.89	P	Fe I	1161
5529.15		Fe I	872
5529.80	P	Fe I	344
5629.94	P	Ti II	68
5529.940		Fe II	224
5530.10		V II	247
5530.27		N II	63
5530.780		Co I	38
5531.949		Fe I	1281
5532.13	P	Fe I	344
5532.17		La II	106
5532.65		Fe III	56
5532.752		Fe I	783
5533.01		Mo I	4
5534.68		Fe I	871,1063
5534.794		Sr I	9
5534.860		Fe II	55
5535.382		V I	1
5535.39		N II	63
5535.419		Fe I	626,1029
5535.484		Ba I	2
5535.66		La II	71
5536.0		C II	10
5536.01		K II	6
5536.59	P	Fe I	345
5536.77		S II	11
5537.11		Ni I	188
5537.756		Mn I	4
5538.32		Gd II	
5538.54		Fe I	839,1064
5539.28		Fe I	871
5539.831		Fe I	1130
5540.051		Sr I	9
5540.16		N II	63
5540.74		Si II	9
5541.030		Sc I	18
5541.19		P II	23
5541.58	P	Fe I	627
5543.03	P	Fe I	1064
5543.04	P	Fe I	926
5543.184		Fe I	926
5543.49		N II	63
5543.86	P	Cr II	35
5543.930		Fe I	1062
5544.61		Y II	27
5544.76	P	Fe II	166
5544.865		V I	38
5545.01		Gd II	98
5545.11		N I	26
5545.26	P	Fe II	24
5545.933		V I	38
5545.937		Co I	191
5546.02		Y II	27
5546.512		Fe I	1145
5547.00		Fe I	1061
5547.080		V I	38
5548.474		Nd II	73
5549.55	P	Fe I	1159
5549.66	P	Fe I	1314
5549.68		Sc I	15
5549.94		Fe I	926
5550.60		Hf I	1

I A	Type	Element	Multiplet No.
5551.29	P	Fe I	714
5551.77	P	Fe I	1059
5551.95		N II	63
5551.985		Mn I	
5552.12		Hf I	7
5552.25		Sc II	25
5552.54		N II	63
5552.70	P	Fe I	1281
5552.85	P	Fe I	344
5553.22	P	Fe I	1064
5553.586		Fe I	1161
5553.693		Ni I	69
5553.81	P	Cr II	34
5554.895		Fe I	1183
5554.94		O I	24
5555.17	P	Fe I	740
5556.01		S II	6
5556.19		Cr I	120,121
5556.48		Yb I	1
5557.08		Al I	6
5557.453		V I	1
5557.90	P	Fe I	464,1164
5557.95		Al I	6
5557.954		Fe I	1163
5558.31		As II	2
5558.752		V I	77
5558.825		Co I	166
5559.06		S II	61
5559.64	P	Fe I	282
5560.230		Fe I	1164
5560.37		N I	25
5560.548		V I	1
5560.69		Gd II	99
5561	P	N IV	13
5561.670		V I	77
5562.02		V II	247
5562.12	P	Fe I	1162
5562.712		Fe I	626,1163
5562.769		Ne I	19
5563.604		Fe I	1062
5563.69	P	Fe I	112,1023
5564.37		N I	25
5564.861		Sc I	18
5564.94		S II	6
5565.30		N II	63
5565.476		Ti I	229
5565.56		Hf II	100
5565.708		Fe I	1183
5566.06	P	Cr II	35
5566.82	P	Fe I	625
5566.92		La II	90
5567.401		Fe I	209
5567.815		Fe II	
5568.07	P	Fe I	1059
5568.44	P	Fe I	1058
5568.71	P	Fe I	1026
5568.81		Cl II	80
5568.81		Fe I	869
5569.62[illegible]		Fe I	686
5570.06	P	Fe I	345
5570.46		Mo I	4
5571	P	N IV	13
5572.849		Fe I	686
5573	P	O V	3
5573.10		Fe I	1061
5573.3		Fe III	68
5574.41		Cr I	120
5576.097		Fe I	686
5576.61		Si II	9
5577.03	P	Fe I	1314
5577.70		A II	134
5578.734		Ni I	47
5578.85		S II	11
5579.34	P	Fe I	1061
5580.51		Cr I	223
5581.87		Y I	12
5581.971		Ca I	21
5582	P	C V	3
5583.33		P II	23
5583.68		Gd II	59
5583.97	P	Fe I	1059
5584	P	O V	3
5584.490		V I	37
5584.738		V I	85
5584.768		Fe I	782
5586.007		V I	85
5586.16		Gd II	78
5586.763		Fe I	686
5587.36	P	Fe I	563
5587.582		Fe I	1026

I A	Type	Element	Multiplet No.
5587.865		Ni I	70
5587.9		Fe III	
5588.07	P	Fe I	1109
5588.25		P II	27
5588.757		Ca I	21
5589.00	P	Fe I	1160
5589.384		Ni I	205
5590.120		Ca I	21
5590.73		Hf II	48
5590.744		Co I	90
5591.322		Sc I	18
5591.38	P	Fe II	55
5592.146		Ni I	250
5592.283		Ni I	69
5592.37		O III	5
5592.4[illegible]		V I	37
5592.9[illegible]		V I	1
5593.23		Al II	16
5593.735		Ni I	206
5594.425		Nd II	79
5594.468		Ca I	21
5594.661		Fe I	1182
5595.06	P	Fe I	1314
5597.21		Gd II	95
5597.87		Cr I	239
5597.92		Ti I	229
5598.303		Fe I	1183
5598.47	P	Fe I	113
5598.487		Ca I	21
5600	P	O V	3
5600.038		Ni I	219
5600.242		Fe I	866,1108
5601.285		Ca I	21
5602	P	O VI	11
5602.54	P	Fe I	1281
5602.788		Fe I	1062
5602.846		Ca I	21
5602.955		Fe I	686
5603.651		Nd I	45
5604.205		V I	85
5604.943		V I	37
5605.91	P	Fe II	51
5606	P	O V	3
5606.11		S II	11
5607.05		Ni I	205
5607.12	P	Fe II	24
5607.66	P	Fe I	1058
5608	P	O V	3
5608.98	P	Fe I	1108
5609.19		Cr I	223
5609.97	P	Fe I	866
5610.01	P	Cr II	34
5610.257		Ce II	26
5610.36		Y II	19
5610.53		La II	106
5611.35	P	Fe I	869
5613.19		Al II	77
5613.698		Ce II	32
5613.70	P	Fe I	1282
5614.29	P	Fe I	1314
56[illegible].303		Nd II	87
5614.58	P	Fe I	739
5614.790		Ni I	250
5615.18	P	Fe I	1143
5615.308		Fe I	209
5615.54	P	Cr I	239
5615.652		Fe I	686
5616.21		Gd II	61
5616.5[illegible]		N I	24
5616.63		S II	11
5617.14	P	Fe I	1066
5617.22		Fe I	626
5617.91		Gd I	3
5618.646		Fe I	1107
5619.23	P	Fe I	923
5619.60		Fe I	1161
5620.04		Fe I	1026,1205
5620.16		Zr I	25
5620.527		Fe I	1061
5620.62	P	Nd II	86
5620.63		Cr II	189
5621.43		Gd II	132
5622.075		V I	85
5622.23		Si I	11
5623.20		N I	24
5623.64	P	Fe I	625
5624.056		Fe I	1160
5624.223		V I	127
5624.549		Fe I	686

I A	Type	Element	Multiplet No.
5624.605		V I	37
5624.895		V I	37
5625.326		Ni I	221
5625.43		N I	24
5625.74		A II	121
5626.014		V I	37
5626.60	P	Cr II	22
5627.08	P	Fe I	1084
5627.49	P	Fe II	57
5627.628		V I	37
5628.347		Ni I	215
5628.645		Cr I	203
5630.14		Y I	12
5631.404		Tm I	
5631.707		Sn I	4
5631.72		Fe I	1159
5632.25		Gd I	3
5632.469		V I	1
5633.970		Fe I	1314
5634.53	P	Fe I	1281
5634.84		Cl II	23
5635.85		Fe I	1088
5636.00	P	Fe I	1058
5636.235		Ru I	10
5636.708		Fe I	868
5637.121		Ni I	218
5637.734		Co I	195
5638.266		Fe I	1087
5638.82		Ni I	203
5639.492		Si II	9
5639.96		S II	14
5640.32		S II	11
5640.46		Fe I	1202
5640.50		C II	15
5640.971		Sc II	29
5641.112		Ni I	230
5641.464		Fe I	1087
5641.880		Ni I	234
5642.01		V II	238
5642.362		Cr I	239
5642.660		Ni I	203
5642.75	P	Fe I	1184
5643.099		Ni I	259
5643.24		Gd I	3
5643.94	P	Fe I	1021
5644.137		Ti I	240
5644.35	P	Fe I	1057
5644.84		Gd II	60
5645.62		S II	6
5645.665		Si I	10
5646.112		V I	37
5646.70	P	Fe I	1109
5646.98		S II	14
5647.234		Co I	112
5648.08		C II	15
5648.18		Cr I	239
5648.570		Ti I	269
5648.90	P	Fe I	625
5649.371		Cr I	239
5649.66		Fe I	838
5649.697		Ni I	231
5650.01		Fe I	1314
5650.31	P	Fe I	1180
5650.7034		A I	12
5650.71		Fe I	1314
5651.47	P	Fe I	1161
5651.53		As II	2
5651.734		Co I	56
5652.01	P	Fe I	1059
5652.3		La II	103
5652.32		Fe I	1108
5653.889		Fe I	1159
5655.179		Fe I	1314
5655.506		Fe I	1107,1314
5656.6585		Ne I	24
5656.895		V I	127
5657.449		V I	37
5657.870		Sc II	29
5657.92	P	Fe II	57
5658.334		Sc II	29
5658.542		Fe I	686
5658.67	P	Fe I	1087
5658.826		Fe I	686
5659.104		Ti I	50
5659.121		Co I	82
5659.86		Sm I	2
5659.95		S II	11
5660.79		Fe I	869
5661.03	P	Fe I	1224
5661.36		Fe I	1108

I A	Type	Element	Multiplet No.
5661.97	P	Fe I	1109
5662.154		Ti I	249
5662.51		C II	15
5662.525		Fe I	1087
5662.58	P	Cr II	34
5662.891		Ti I	269
5662.94		Fe I	924
5662.95		Y II	38
5664.017		Ni I	272
5664.040		Cr I	203
5664.55		Zr I	47
5664.73		S II	11
5665.601		Si I	10
5666.64		N II	3
5666.78	P	Ni I	233
5666.837		Fe I	1053,1060
5667.164		Sc II	29
5667.67	P	Fe I	209
5668.369		V I	37
5668.868		Nd II	84
5668.901		Ce II	23
5669.030		Sc II	29
5669.590		Si II	
5669.8	P Forb	Na I	7
5669.945		Ni I	250
5670.827		V I	36
5671.54		La II	95
5671.62	P	Cr II	22
5671.805		Sc I	12
5672.28	P	Fe I	1234
5673.58		Hf II	112
5675.08	P	Fe I	583
5675.3	P Forb	Na I	7
5675.413		Ti I	249
5675.853		Tm I	
5676.02		N II	3
5677.68	P	Fe I	1057
5678.04	P	Fe I	1290
5678.38	P	Fe I	982
5678.42		Cr II	189
5678.60	P	Fe I	113
5679.023		Fe I	1183
5679.56		N II	3
5679.908		Ti I	269
5680.26		Fe I	1026
5680.93		Zr I	25
5681.198		Cr I	
5682.204		Ni I	232
5682.483		Cr I	239
5682.633		Na I	6
5682.88		Ca I	
5684.190		Sc II	29
5684.523		Si I	11
5685.86	P	Fe I	1281
5686.21		N II	3
5686.532		Fe I	1182
5686.826		Sc I	12
5688.193		Na I	6
5688.205		Na I	6
5688.47		Ca I	
5688.525		Nd II	79
5688.593		Co I	90
5688.856		Si II	
5689.22		Mo I	5
5689.465		Ti I	249
5690.07	P	Fe I	1281
5690.470		Si I	10
5691.38	P	Fe II	47
5691.509		Fe I	1087
5691.52		Ni I	228
5691.69	P	Fe I	1084
5691.71		A II	134
5691.99	P	Ti II	79
5694.46		He II	8
5694.730		Cr I	239
5694.998		Ni I	220
5696.0		C III	2
5696.10	P	Fe I	1179
5696.11	P	Fe II	18
5696.22		Gd I	3
5696.47		Al III	2
5696.63		S I	11
5698.05		Fe I	867
5698.330		Cr I	239
5698.37		Fe I	1130
5698.509		V I	35
5700.14		Sc I	12
5700.24		S I	11
5700.240		Cu I	2
5700.514		Cr I	203,228

I A	Type	Element	Multiplet No.
5701.138		Si I	10
5701.35		Gd I	3
5701.375		Si II	
5701.46	P	Cr II	22
5701.553		Fe I	209
5702.244		Nd II	78
5702.307		Cr I	203
5702.434		Fe I	866
5702.666		Ti I	249
5703.09	P	Fe I	1053
5703.32		La II	48
5703.562		V I	35
5705.32	P	Fe I	1058
5705.48		Fe I	1087
5705.988		Fe I	1183
5706.11	P	Fe I	1088
5706.11		S I	11
5706.206		Nd II	86
5706.375		Si II	
5706.973		V I	35
5707.03		Ca I	54
5707.068		Fe I	868
5707.25	P	Fe I	866
5707.70	P	Fe I	1056
5708.109		Fe I	1161
5708.199		Ti I	249
5708.280		Nd II	79
5708.437		Si I	10
5708.600		Sc I	12
5709.378		Fe I	686
5709.559		Ni I	46
5709.93	P	Fe I	1088
5709.976		Tm II	
5710.76		N II	3
5711.0735		Mg I	8
5711.0831		Mg I	8
5711.0912		Mg I	8
5711.754		Sc I	12
5711.852		Ti I	249
5711.867		Fe I	1087
5711.905		Ni I	69
5712.150		Fe I	686
5712.39		La II	20
5712.635		Cr I	
5712.778		Cr I	119
5713.895		Ti I	249
5714.88	P	Fe I	552
5715.086		Ni I	231
5715.107		Fe I	1061,1086
5715.123		Ti I	228
5715.47	P	Fe I	1054
5715.80	P	Fe I	1198
5716.450		Ti I	249
5717.30		Sc I	12
5717.845		Fe I	1107
5717.99		Ca I	54
5718.120		Nd II	86
5719.18		Hf I	6
5719.2254		Ne I	28
5719.821		Cr I	119
5720.445		Ti I	249
5720.613		O I	40
5720.79	P	Fe I	1291
5720.89	P	Fe I	1178
5721.02	P	Cr II	34
5721.70	P	Fe I	1057
5721.71	P	Fe I	1088
5721.99		Gd II	110
5722.56	P	Fe II	58
5722.65		Al III	2
5723.66	P	Fe I	1160
5723.87	P	Ti II	79
5724.073		Sc I	12
5724.37		A II	12
5724.445		Fe I	1109
5725.633		V I	135
5725.95	P	Fe II	57
5727.024		V I	35
5727.29		La II	48
5727.662		V I	35
5727.69		P II	27
5727.75		Fe I	1204
5728.32		Gd II	60
5728.74	P	Fe II	51
5728.91		Y II	34
5729.203		Cr I	257
5730.67		N II	3
5731.103		O I	40
5731.257		V I	36
5731.70		Ca I	54

I A	Type	Element	Multiplet No.
5731.771		Fe I	1087
5732.29	P	Fe I	1313
5732.72	P	Fe II	57
5732.86	P	Fe I	1055
5733.86		Gd II	94
5734	P	N IV	9
5734.004		V I	135
5735.70		Zr I	4
5735.74		Ca I	54
5736.55		Lu I	1
5736.632		Cr I	228
5737.040		V I	35
5737.68	P	Fe II	58
5737.71		Fe I	1053
5738.22	P	Fe I	1084
5738.286		Mn I	
5738.554		Cr I	227
5739.08	P	Ti I	249
5739.30		Sc I	12
5739.464		Ti I	228
5739.762		Si III	4
5739.78	P	Fe I	1057
5739.975		Ti I	228
5740.65		La I	8
5740.862		Nd II	86
5741.192		Ti I	280
5741.36		Sc I	12
5741.861		Fe I	1086
5742.95	P	Fe I	1084
5743.28		Ca I	
5743.438		V I	35
5746.32	P	Cr I	228
5746.432		Cr I	243
5746.81		Ca I	54
5747.29		N II	9
5747.36		N I	35
5747.85	P	Fe I	343
5747.88	P	Fe II	164
5747.95		Fe I	1182
5748.15	P	Fe I	1290
5748.299		Ne I	13
5748.343		Ni I	45
5748.412		V I	127
5748.860		V I	92
5749.28		Ni I	176
5749.41		Gd II	97
5749.65	P	Fe I	1160
5750.424		O I	40
5751.41		Mo I	5
5752.043		Fe I	1180
5752.64		N I	33
5752.711		V I	92
5752.89		Ti I	214
5753.136		Fe I	1107
5753.38	P	Fe I	1084
5753.692		Cr I	
5753.97	P	Fe I	170
5754.17		Gd II	
5754.258		Si I	10
5754.41		Fe I	866
5754.675		Ni I	68
5754.89	P	Fe I	113
5756.45	P	Ti I	228
5757.69		Ca I	54
5759.270		Fe I	1184
5759.56	P	Fe I	1087
5759.57	P	Fe I	1204
5760.351		Fe I	867
5760.53	P	Fe I	1054
5760.71	P	Fe I	1056
5760.847		Ni I	231
5761.08	P	Fe I	1057
5761.27		Fe I	867
5761.411		V I	35
5761.88		Ca I	54
5762.295		Ti I	309
5762.434		Fe I	866
5762.84	P	Fe I	1086
5762.992		Fe I	1107
5764.300		Tm I	
5764.32		Ca I	
5764.419		Ne I	13
5766.330		Ti I	309
5767.18		Hf II	22
5767.43		N II	9
5768.895		Ce II	32
5769.06		La II	70
5769.31	P	Fe I	1179
5769.32		La I	8
5769.598		Hg I	5

I A	Type	Element	Multiplet No.
5770.17	P	Fe I	1236a
5772.258		Si I	17
5772.402		V I	92
5772.676		Cr I	227
5773.75	P	Fe II	165
5774.037		Ti I	309
5775.090		Fe I	1087
5776.670		V I	36
5776.76		Ta I	5
5777.622		Ba I	9
5777.77		Cr I	257
5778.47		Fe I	209
5778.81	P	Fe I	1203
5779.65	P	Fe II	24
5780.189		Mn I	
5780.452		Si I	9
5780.621		Fe I	552
5780.77		Ni I	217
5780.778		Ti I	214
5780.83		Fe I	552,922,1159
5780.97		Cr I	188
5781.195		Cr I	119,188
5781.69		Y II	34
5781.73	P	Ti II	79
5781.806		Cr I	188
5782.132		Cu I	2
5782.356		Tm II	
5782.601		V I	35,127
5783.112		Cr I	188
5783.15	P	Cr I	227
5783.509		V I	141
5783.934		Cr I	188
5784.18		Ba II	13
5784.360		V I	141
5784.69		Fe I	686
5785.0		Fe II	215
5785.002		Cr I	188
5785.08		Mg I	24
5785.64		Si II	
5785.67		Ti I	309
5785.820		Cr I	188
5785.86		Cr I	17
5785.979		Ti I	309
5786.153		V I	141
5786.99	P	Fe I	1084
5787.036		Cr I	119
5787.27	P	Fe I	625
5787.99		Cr I	188
5788.389		Cr I	119
5788.549		V I	92
5789.22		La I	8
5790.50		CI II	27
5790.59	P	Cr I	17
5790.659		Hg I	4
5791.005		Cr I	188
5791.044		Fe I	552
5791.32		La I	8
5791.38		Gd I	3
5791.47		V II	
5791.53	P	Fe I	1234
5791.781		Cr I	243
5791.86		Mo I	5
5793.128		Si I	9
5793.16	P	Fe II	47
5793.51		C I	18
5793.70	P	Fe I	1236a
5793.932		Fe I	1086
5794	P	N IV	15
5795.87		Fe II	211
5796.078		Ni I	68
5796.67	P	Fe I	1054
5796.757		Cr I	
5797.352		V I	142
5797.445		Ti I	309
5797.53	P	Cr I	185
5797.57		La II	4
5797.76		Zr I	4
5797.81	P	Fe II	165
5797.912		Si I	9
5798.00	P	Cr I	185
5798.194		Fe I	982
5798.46		Cr I	17
5798.905		V I	142
5800.02	P	Fe II	165
5800.229		Ba I	9
5800.48		Si II	8
5801.14		Cr I	243
5801.17		C I	18
5801.30		Gd II	112
5801.51		C IV	1
5801.71		Hf II	59
5804.020		Nd II	79
5804.06		Fe I	959
5804.265		Ti I	309
5804.4488		Ne I	19
5804.478		Fe I	1087
5804.91	P	Fe II	165
5805.233		Ni I	234
5805.76		C I	18
5805.76	P	Fe I	1313
5805.77		La II	1
5806.31	P	Cr II	34
5806.56		La II	90
5806.727		Fe I	1180
5806.75		Si II	8
5806.77	P	Sc II	21
5807.05		Gd II	112
5807.14		V I	142
5807.22	P	Fe I	581
5807.79	P	Fe I	552
5807.97	P	Fe I	1178
5808.31		La II	4
5808.63		La II	118
5809.249		Fe I	982
5809.50		Hf II	14
5809.75		Ti I	73
5809.88	P	Fe I	1084
5811.10		Ta I	3
5811.572		Nd II	78
5811.93		Fe I	1022
5811.93	P	Fe II	24
5812	P	N IV	15
5812.14		C IV	1
5812.81		A II	125
5812.827		Ti I	309
5813.33	P	Fe I	1054
5813.67		Fe II	163
5814.00		Ti I	73
5814.62	P	Ti II	79
5814.80		Fe I	1086
5815.16		Fe I	1055
5815.23	P	Fe I	1234
5815.42	P	Fe I	1053
5815.85		Gd II	112
5816.07	P	Fe I	1127
5816.36		Fe I	1179
5816.48		N I	32
5816.844		Mn I	
5817.063		V I	92
5817.532		V I	142
5817.87		C II	22
5818.74		Eu II	9
5819.22		S II	14
5819.93		V II	99
5820.155		Ne I	19
5820.99		Gd II	112
5823.13		C II	22
5823.17		Fe II	164
5823.679		Ti I	239
5824.40	P	Fe II	58
5826.12	P	Fe II	182
5826.299		Co I	169
5826.64	P	Fe I	1084
5827.1		C III	22
5827.24		Cr II	198
5827.80		C II	22
5827.80		Si II	8
5827.89	P	Fe I	552
5828	P	N IV	15
5829.12	P	Fe II	165
5829.53		N I	32
5830.719		V I	142
5831.624		Ni I	233,250
5832.47		Ti I	309
5833.65		Fe III	114
5833.93	P	Fe I	209
5834.06	P	Fe II	165
5834.93	P	Fe II	57
5835.10	P	Fe I	1084
5835.41	P	Fe I	1313
5835.43	P	Fe II	58
5835.50	P	Fe II	182
5835.58	P	Fe I	343
5835.61		Fe II	
5836.31		C II	22
5837.29		Au I	2
5837.709		Fe I	1129
5838.418		Fe I	959
5838.66		Cr I	119
5839.78	P	Ti I	105
5840.47		Gd II	112
5841.01		N I	32
5841.86		Cr II	198
5842.23		Hf II	50
5842.391		Nd II	86
5843.24		Cr I	119
5843.77		C II	22
5843.80		A II	12
5844.606		Cr I	119
5844.879		Fe I	1056
5845.27	P	Fe I	1313
5845.71		Gd II	112
5846	P	N IV	15
5846.12		Si II	8
5846.306		V I	142
5846.575		Co I	169
5847.010		Ni I	44
5848.09		Fe I	552,1175
5848.95		La II	111
5849.67	P	Fe I	922
5850.286		V I	92
5851.63		Gd I	3
5852.19		Fe I	1178
5852.4878		Ne I	6
5853.18		Fe I	35
5853.48	P	Fe I	1340
5853.62		Al II	41
5853.675		Ba II	2
5854.1		Fe III	
5854.16		N I	32
5854.27		Cr I	
5854.31	P	Sc II	21
5855.126		Fe I	1179
5855.24		Gd II	112
5856.084		Fe I	1128
5856.09		C II	22
5856.22		Gd I	3
5856.45	P	Fe II	183
5856.96		Gd II	60
5857.454		Ca I	47
5857.755		Ni I	228
5857.9	P	C III	20
5858.27	P	Fe I	170
5858.28		Mo I	5
5858.77	P	Fe I	1084
5859.20		Fe I	1084
5859.23	P	Si I	9
5859.608		Fe I	1181
5859.96	P	Fe I	1054
5860.73		Gd II	58
5860.92	P	Ti II	79
5861.11	P	Fe I	1084
5861.53		Al II	41
5862.357		Fe I	1180
5862.80		V II	91
5863.70		La II	62
5863.96		Cr I	185
5863.97		Ni I	253
5864.24	P	Fe I	1086
5864.54	P	Fe II	24
5866.453		Ti I	72
5867.01	P	Fe I	1203
5867.497		Si II	8
5867.572		Ca I	46
5867.81		Al II	41
5868.404		Si II	8
5870.65	P	Fe I	1235
5871.04		Fe I	150
5871.289		Fe I	1055
5871.6	P	C III	20
5871.81		Gd II	79
5872.73	P	Fe I	552
5872.828		Ne I	31
5872.98		Eu II	9
5873.211		Fe I	1087
5874.00		La II	48
5875.6		Fe III	
5875.618		He I	11
5875.650		He I	11
5875.989		He I	11
5876.27	P	Fe I	1084
5876.55		Cr I	119
5877.26		Gd II	94
5877.770		Fe I	1083
5879.49	P	Fe I	1201
5879.79		Zr I	4
5880.00		Fe I	1201
5880.306		Ti I	71
5880.63		La II	35
5881.28	P	Fe I	1178

I A	Type	Element	Multiplet No.
5881.76	P	Fe I	63
5881.8950		Ne I	1
5883.06	P	Fe I	1124
5883.421		Co I	90
5883.838		Fe I	982
5884.45:		Cr I	119
5884.59		Gd II	112
5885.61		Zr I	2
5887.46	P	Fe I	1203
5888.32		Mo I	5
5889.95:		Na I	1
5889.97		C II	5
5890.02	P	Sc II	21
5890.48	P	Fe I	1313
5890.487		Co I	82
5891.12		Fe I	581
5891.16	P	Fe I	1179
5891.36		Fe II	211
5891.528		Nd II	86
5891.5		Fe III	114
5891.65		C II	5
5891.89	P	Fe I	1236
5891.9		Fe II	
5892.46	P	Fe I	1201
5892.66		La II	48
5892.71		Fe I	1086
5892.76	P	Ni I	250
5892.80	P	Fe I	63
5892.878		Ni I	68
5893.24	P	Fe I	1055
5893.42		Ge II	1
5894.1	P	C III	20
5894.351		Zn II	1
5895.007		e I	1235
5895.646		Tm I	
5895.89		S II	20
5895.90		Cr II	198
5895.92		Na I	1
5897.54		V II	98
5897.62		Gd II	112
5898.212		Fe I	1259
5899.295		Ti I	72
5901.0		Fe III	115
5901.53	P	Fe I	1083
5901.95		La II	107
5902.182		Cr I	119
5902.52		Fe I	1234
5903.317		Ti I	71
5903.6		Fe II	
5904.07		Gd II	112
5905.673		Fe I	1181
5906.50	P	Ti I	105
5907.36		C II	44
5908.24		Fe I	150
5908.25		S II	13
5909.38	P	Fe II	57
5909.99		Fe I	552
5911.45		Gd II	
5913.35	P	Fe I	781
5913.55		Gd II	
5913.730		Ti I	2
5913.87		Cr II	
5914.16		Fe I	1180,1181
5914.28		V II	126
5914.92		C II	44
5915.123		Ti I	228
5915.266		Si II	8
5915.551		Co I	82
5915.93		Cr I	185
5916.250		Fe I	170
5916.364		V II	126
5916.73		Cr I	185
5918.548		Ti I	71
5918.93	P	Fe I	1083
5919.60		C II	44
5920.0		Fe III	115
5920.520		Fe I	581
5922.112		Ti I	72
5922.365		Co I	55
5923.930		Ni I	259
5925.81	P	Ni I	42
5926.83	P	Fe I	1231
5927.15		S II	21
5927.71		La II	111
5927.798		Fe I	1175
5927.82		N II	28
5928.50	P	Fe I	1055
5928.86		V II	98
5929.35		Hf II	60
5929.5		Fe III	114

I A	Type	Element	Multiplet No.
5929.700		Fe I	1176
5930.173		Fe I	1180
5930.61		La I	2
5930.68		La I	2
5931.79		N II	28
5931.89	P	Fe I	1017
5932.05	P	Fe II	47
5932.95		S II	13
5933.80	P	Fe I	1198
5934.658		Fe I	982
5934.747		Nd II	78
5935.23		Zr I	2
5935.391		Co I	55
5936.22		La II	19
5937.806		Ti I	72
5939.75		Ta I	7
5940.25		N II	28
5940.68		Ti I	2
5940.69		S II	21
5940.972		Fe I	1083
5941.36	P	Fe II	58
5941.67		N II	28
5941.755		Ti I	72
5942.71	P	Fe I	1233
5943.11	P	Fe I	1021
5943.58	P	Fe I	63
5943.62	P	Fe I	1085
5944.01		Ta I	8
5944.65	P	Ti I	2
5944.8342		Ne I	1
5946.484		Co I	169
5947.30	P	Fe I	1056
5947.50	P	Fe I	1199
5948.30		La II	105
5948.584		Si I	16
5949.35		Fe I	14,1176
5950.13	P	Fe I	1200
5950.91		A II	12
5951.30		S II	21
5951.45		V II	98
5951.60		Gd II	95
5952.19	P	Fe I	1313
5952.39		N II	28
5952.55	P	Fe II	182
5952.749		Fe I	959
5953.162		Ti I	154
5953.65		Fe III	115
5955.12	P	Fe I	1233
5955.37		Zr I	3
5955.682		Fe I	1106
5956.48		Gd II	59
5956.5		Fe II	
5956.702		Fe I	14
5957.612		Si II	4
5958.22	P	Fe I	1199
5958.23	P	Fe I	14
5958.34	P	Fe I	63
5958.46		O I	23
5958.63		O I	23
5959.878		Fe I	1020
5960.93		N II	28
5961.91	P	Fe I	1080
5962.4		Fe II	
5963.25		Fe I	63
5965.040		Co I	169
5965.474		Ne I	39
5965.828		Ti I	154
5966.07		Eu II	9
5967.77		V II	126
5969.38		Hf II	66
5969.554		Fe I	1086
5969.64		K II	7
5971.07		Ti I	264
5971.09		La II	69
5971.28		Tm I	
5971.699		Ba I	7
5971.94		Al II	100
5973.37	P	Fe I	1175
5973.52		La II	103
5973.66		Ni I	226
5974.62	P	Fe I	1055
5974.628		Ne I	28
5975.355		Fe I	1017,1260
5975.5340		Ne I	1
5975.830		Ce II	30
5976.18	P	Fe I	1125
5976.799		Fe I	959
5978.17	P	Fe I	1199
5978.543		Ti I	154
5978.90		Fe III	117

I A	Type	Element	Multiplet No.
5978.970		Si II	4
5980.748		V I	49
5980.89		Ti I	72
5981.25		Ba II	13
5981.38	P	Fe I	837
5981.96		Cr I	185
5982.52		Ti I	264
5982.84		Cr I	185
5983.704		Fe I	175
5983.90		Lu II	2
5984.092		Co I	37
5984.253		Co I	201
5984.586		Ti I	2
5984.602		V I	49
5984.805		Fe I	1260
5986.54	P	Fe II	24
5987.057		Fe I	1260
5987.11		Gd II	97
5988.560		Ti I	154
5990.59	P	Fe II	51
5991.34		O I	44
5991.383		Fe II	46
5991.58	P	Fe I	1232
5991.890		Co I	90
5991.93		O I	44
5992.65	P	Fe I	1080
5993.18		O I	44
5995.28		O I	44
5995.685		Ti I	311
5995.93	P	Fe I	1191
5996.007		Ti I	154
5996.16		S II	13
5996.22	P	Fe I	624
5996.49	P	Fe I	1083
5996.74		Ni I	249
5997.088		Ba I	7
5997.24		Ta I	12
5997.610		Ni I	252
5997.808		Fe I	1175
5998.86		Ni I	226
5999.003		Ti I	198
5999.30		Fe III	117
5999.47		I I	16
5999.668		Ti I	227
5999.70		Al II	93
5999.83		Al II	93
5999.85		Ba II	13
6000.668		Co I	169
6001.18		Al II	109
6001.53	P	Sc II	20
6001.81		Al II	93
6002.273		V I	49
6002.601		V I	34
6002.640		Ti I	198
6003.033		Fe I	959
6004.53		Lu I	1
6004.57		Gd II	112
6005.030		Co I	37
6005.53		Fe I	207,1079
6006.42		Al II	93
6007.313		Ni I	42
6007.75	P	Fe I	581
6007.961		Fe I	1178
6008.295		Mn II	16
6008.35	P	Fe I	1079
6008.48		N I	16
6008.577		Fe I	982
6008.648		V I	49
6009.298		Mn II	16
6009.45	P	Fe I	60
6009.83	P	Fe I	624
6009.962		Mn II	16
6011.12		Gd II	60
6012.21	P	Fe I	64
6012.251		Ni I	
6012.53		Ti I	264
6012.75	P	Fe I	1198
6013.498		Mn I	27
6015.25	P	Fe I	63
6016.637		Mn I	27
6016.66		Fe I	38
6016.95	P	Fe I	1232
6017.52	P	Ti I	257
6017.90		V I	49
6018.34	P	Fe I	176
6018.423		Ti I	198
6018.62		Ti I	70
6019.36	P	Fe I	780
6019.470		Ba I	7
6020.173		Fe I	1178

I A	Type	Element	Multiplet No.
6021.09		Ge II	1
6021.18	P	Fe II	24
6021.802		Mn I	27
6021.82		Fe I	63,1079,1085
6022.81		As II	1
6023.41		Y I	3
6024.066		Fe I	1178
6024.15		P II	5
6025.723		Pr II	39
6025.73		Ni I	251
6026.81		V II	125
6027.057		Fe I	1018
6027.23		V II	90
6027.57		Hf II	91
6027.76	P	Fe I	1312
6028.26		V II	97
6028.64		Zr II	136
6028.98		V II	125
6029.28		Cr I	242
6029.9971		Ne I	3
6030.66		Mo I	5
6031.07		V II	97
6031.68		Ti I	2
6032.124		A I	13
6032.30		Fe III	117
6032.67		Fe I	1082
6034.01		P II	5
6034.04	P	Fe I	1142
6034.204		Ce II	30
6035.34	P	Fe I	1125
6035.487		Ce II	30
6036.17		Sc I	
6036.7		He II	8
6039.312		Ni I	248
6039.690		V I	34
6041.44		Hf II	65
6041.93		S I	10
6042.092		Fe I	
6043.10		P II	5
6043.386		Ce II	30
6043.738		Fe I	664
6044.53	P	Fe II	46
6045.38		Ta I	10
6045.497		Fe II	200
6046.04		S I	10
6046.26		O I	22
6046.46		O I	22
6047.665		Cr I	242
6048.636		V I	49
6049.110		Co I	201
6049.50		Gd II	5
6049.51		Eu II	9
6050.446		Mn II	16
6051.00	P	Fe I	207
6051.860		Mn II	16
6052.66		S I	10
6052.892		Mn II	16
6053.48		Cr II	105
6053.680		Ni I	247
6054.100		Fe I	1142
6055.987		Fe I	1259
6058.113		V I	34
6058.76	P	Ti I	70
6059.25	P	Sc I	20
6060.81	P	Fe I	1081
6061.04		Fe I	217
6061.11		Al I	99
6062.75		Cr I	185
6062.88		Zr I	3
6062.89		Fe I	63
6063.117		Ba I	7
6064.631		Ti I	69
6065.487		Fe I	207
6065.5		N II	27
6065.81	P	Fe I	581
6066.32		Al II	92
6066.44		Al II	92
6067.13		La II	48
6067.62	P	Si I	15
6068.00		Cr II	197
6068.46		Al II	92
6069.69		Cr II	197
6070.08		Cr II	105
6073.23		Al II	92
6074.1		He II	8
6074.3377		Ne I	3
6077.43		A II	12
6078.496		Fe I	1259
6079.02		Fe I	1176
6080.11		V II	206

I A	Type	Element	Multiplet No.
6080.65		Gd II	112
6080.85		S II	20
6081.421		V I	34
6081.51		Cr II	188
6081.72	P	Fe I	1142
6081.85	P	Fe I	1018
6082.431		Co I	169
6082.718		Fe I	64
6083.67	P	Fe I	981
6083.82		V II	125
6084.11		Fe II	46
6085.228		Ti I	69
6085.267		Fe I	269
6085.43		La II	111
6086.290		Ni I	249
6086.55		V I	49
6086.663		Co I	165
6086.93		V II	125
6087.485		V I	33
6087.76		P II	5
6089.473		V I	33
6089.566		Fe I	1327
6089.69		Cr II	187
6090.184		V I	34
6090.54	P	V I	33
6091.175		Ti I	238
6091.74	P	Fe I	1200
6092.13		S II	20
6092.814		Ti I	153
6093.144		Co I	37
6093.66		Fe I	1177
6094.419		Fe I	1177
6094.65		Cl II	26
6095.37		C II	24
6095.93		V II	97
6096.689		Fe I	959
6097.08	P	Fe I	64
6097.12		S II	13
6097.42		V I	33
6098.28	P	Fe I	1200
6098.62		C II	24
6098.655		Ti I	304
6100.04		Zr II	93
6100.23	P	Fe I	1199
6100.29	P	Fe I	1199
6100.37		La II	47
6102.178		Fe I	1259
6102.26		S II	26
6102.59		C II	24
6102.59	P	Fe III	3
6102.722		Ca I	3
6103.190		Fe I	1260
6103.54		Fe II	200
6103.56		A II	27
6103.642		Li I	4
6105.15	P	Fe I	1175
6105.381		Mn II	16
6106.19		Gd II	95
6106.25		O I	43
6106.47		Zr II	106,137
6106.84	P	Fe I	208
6106.967		V I	60
6107.09	P	Fe I	1081
6107.293		Mn II	16
6107.32	P	Fe I	1015
6108.121		Ni I	45
6108.8	P	Mn II	16
6109.318		Fe I	581
6110.30		As II	5
6110.794		Ba I	7
6111.06		Ni I	230
6111.622		V I	34
6112.26		Cr II	105
6113.33		Fe II	46
6114.07		Gd I	3
6114.41	P	Fe I	981
6114.6		N II	36
6114.70		Zr II	93
6114.92		A II	102
6115.21		C II	19
6116.04	P	Fe II	46
6116.181		Ni I	218,251
6116.994		Co I	37
6118.06		Ni I	230
6118.2		He II	8
6119.505		V I	34
6119.780		Ni I	244
6120.12		A II	22
6120.25	P	Fe I	14
6120.86		Zr I	24

I A	Type	Element	Multiplet No.
6120.98		V II	97
6121.008		Ti I	153
6122.219		Ca I	3
6122.438		Mn II	13
6122.640		Co I	169
6122.799		Mn II	13
6123.164		Mn II	13
6123.38		A II	102
6123.41		S II	13
6124.08	P	Fe I	1326
6124.85		Si I	30
6124.86		Zr I	24
6125	P	N IV	16
6125.03		Si I	30
6125.855		Mn II	13
6126.09		La II	69
6126.210		Mn II	13
6126.217		Ti I	69
6126.516		Mn II	13
6127.49		Zr I	2
6127.913		Fe I	1017,1082
6128.21		S II	28
6128.30		V I	33
6128.725		Mn II	13
6128.990		Ni I	42
6129.022		Mn II	13
6129.23		Cr II	105
6129.255		Mn II	13
6129.57		La II	47
6129.71	P	Fe II	46
6130.174		Ni I	248
6130.37	P	Fe I	624
6130.794		Mn II	13
6131.005		Mn II	13
6131.30	P	Si I	30
6131.54		Si I	30
6131.86		Si I	30
6131.917		Mn II	13
6133.948		Ni I	229
6134.58		Zr I	2
6135.07		V I	60
6135.10		Hf II	90
6135.36		V I	34
6135.759		Cr I	314
6135.83		Ba II	12
6136.620		Fe I	169
6136.9		N II	36
6136.999		Fe I	62
6137.51	P	Fe I	685
6137.696		Fe I	207
6138.38		Ti I	197
6138.44		Y I	3
6138.67		A II	21,103
6138.77		Cr II	188
6138.98		S II	63
6139.65	P	Fe I	208
6140.50		Zr I	24
6141.01	P	Fe II	46
6141.718		Ba II	2
6141.734		Fe I	816
6142.047		Ni I	244
6142.21	P	Si I	30
6142.53		Si I	30
6143.0623		Ne I	1
6143.23		Zr I	2
6145.05		Si I	29
6145.42	P	Fe I	685
6146.225		Ti I	153
6146.38		Co I	80
6146.53		La II	4
6147.15		Cr II	105
6147.735		Fe II	74
6147.85		Fe I	1016
6148.65	P	Fe I	1141
6149.238		Fe II	74
6149.743		Ti I	197
6150.10	P	Fe II	46
6150.132		V I	20
6150.9		N II	36
6151.509		V I	33
6151.624		Fe I	62
6152.82	P	Fe I	1312
6154.225		Na I	5
6154.4	P	C III	13
6155.22		Si I	29
6155.24	P	Fe II	161
6155.4	P	C III	13
6155.73		Si I	29
6155.99		O I	10
6156.10		Ca I	20

I A	Type	Element	Multiplet No.
6156.25		Hf II	67
6156.6	P	C III	13
6156.78		O I	10
6157.41	P	Fe I	624
6157.734		Fe I	1015
6158.19		O I	10
6159.409		Fe I	1175
6160.747		Na I	5
6160.75	P	Fe II	161
6161.194		Pr II	39
6161.289		Ca I	20
6161.84		S II	27
6162.172		Ca I	3
6163.42		Ni I	230
6163.560		Fe I	64
6163.5939		Ne I	5
6163.758		Ca I	20
6165.18	P	Ni I	229
6165.366		Fe I	1018
6165.56		P II	5
6165.945		Pr II	39
6166.443		Ca I	20
6167.82		N II	36,60
6168.46		Cr II	196
6168.86		Co I	82
6169.055		Ca I	20
6169.559		Ca I	20
6170.16		N II	36
6170.340		V I	20
6170.47		As II	1
6170.492		Fe I	1260
6170.568		Ni I	228,230
6170.6		He II	8
6171.01	P	Fe I	1256
6172.28		A II	102
6172.72		La II	4
6173.05		Eu II	9
6173.343		Fe I	62
6173.40		N II	36
6174.15		La II	47
6175.158		Fe II	200
6175.424		Ni I	217
6176.813		Ni I	228
6176.95		Cr II	105
6177.258		Ni I	58
6177.49		Ni I	244
6178.13	P	Fe II	46
6179.17		Cr II	187
6179.378		Fe II	163
6180.093		Ni I	65,217
6180.216		Fe I	269
6180.42		Gd II	111
6181.57		Al II	66
6181.68		Al II	66
6182.28		Al II	66
6182.45		Al II	66
6183.42		Al II	66
6183.892		Ni I	226
6184.94	P	Fe II	163
6185.1		Fe III	
6185.34	P	Fe II	46
6186.14		Ti I	197
6186.740		Ni I	229
6187.41	P	Fe I	342
6188.00	P	Cr II	187
6188.037		Fe I	959
6188.09		La II	117
6189.005		Co I	37
6189.350		V I	20
6191.186		Ni I	45
6191.562		Fe I	169
6191.73		Y I	2
6192.96		Zr I	24
6193.672		Sc I	3
6195.18		Cr II	105
6196.71	P	Fe II	46
6199.16		Fe II	162
6199.202		V I	19
6199.475		Fe I	208
6200.323		Fe I	207
6201.52		Al II	57
6201.70		Al II	57
6202.31	P	Fe I	208
6203.51		La II	111
6204.640		Ni I	226
6207.251		V I	20
6208.18		Cr II	105
6209.73	P	Fe I	981
6210.676		Sc I	2
6212.04		Fe I	1142
6212.30		Ti II	108
6213.06		Zr I	24
6213.438		Fe I	62
6213.874		V I	20
6214.58		Zn II	1
6215.152		Fe I	1018
6215.212		Ti I	293
6216.368		V I	19
6217.2813		Ne I	1
6217.288		Fe I	1335
6217.95	P	Fe II	34
6219.290		Fe I	62
6219.35	P	Fe II	161
6219.54	P	Fe I	685
6219.54	P	Fe II	34
6220.460		Ti I	293
6220.78		Fe I	958
6221.40		Fe I	981
6221.41		Ti I	293
6221.661		Fe I	13
6221.88		Lu II	2
6222.59		Y I	2
6222.81		Hf II	57
6223.994		Ni I	228
6224.23	P	Fe I	1257
6224.26	P	V I	20
6224.507		V I	20
6226.18		Al II	10
6226.29		V II	124
6226.66		Cr II	105
6226.77		Fe I	981
6229.234		Fe I	342
6229.34	P	Fe II	34
6230.115		Ni I	227
6230.728		Fe I	207
6230.736		V I	19
6230.84		Hf II	69
6230.968		Co I	37
6231.76		Sc I	3
6231.78		Al II	10
6232.661		Fe I	816
6232.735		Fe I	685
6233.187		V I	20
6233.52		Fe II	
6233.8		He II	7
6237.34		Si I	28
6237.62		Si I	27
6238.375		Fe II	74
6239.36	P	Fe II	34
6239.410		Sc I	2
6239.64		F I	3
6239.73		A II	21
6239.77		Cr II	105
6239.778		Sc I	3
6239.95	P	Fe II	74
6240.137		V I	20
6240.266		Fe I	1015
6240.656		Fe I	64
6242.52		N II	57
6242.80		V I	19
6243.11		V I	19
6243.13		A II	21
6243.36		Al II	10
6243.86		Si I	28
6244.13	P	Si I	28
6244.344		Pr II	39
6244.51		Sc I	3
6244.56		Si I	27
6245.214		V I	20
6245.629		Sc II	28
6245.84		Fe I	1289
6246.334		Fe I	816
6247.562		Fe II	74
6248.916		Fe II	
6248.95		Hf II	22
6249.65	P	Fe I	685
6249.92		La I	7
6251.26	P	Fe I	1176
6251.83		V I	19
6252.561		Fe I	169
6253.82	P	Fe I	1256
6254.25		Si I	28
6254.262		Fe I	111
6254.96		Si I	28
6256.365		Ni I	43
6256.370		Fe I	169
6256.84		O I	50
6256.906		V I	19
6257.72		Ti I	1
6257.834		Nd II	72
6258.103		Ti I	104
6258.591		Ni I	226
6258.595		V I	19
6258.706		Ti I	104
6258.962		Sc I	3
6259.615		Ni I	216
6260.31		Gd II	111
6261.101		Ti I	104
6261.236		V I	20
6261.55		O I	50
6262.30		La II	33
6264.55		O I	49
6264.825		Ti I	144
6265.140		Fe I	62
6266.021		Ti I	144
6266.32		V I	20
6266.4950		Ne I	5
6266.89		O I	48
6267.64	P	Fe I	110
6267.845		Fe I	1123
6268.50		Ti I	103
6268.841		V I	20
6270.238		Fe I	342
6271.289		Fe I	685
6271.52	P	Fe I	1231
6271.83		Cr II	196
6272.650		Ni I	244
6273.389		Ti I	1
6273.76		La II	131
6274.34		S II	19
6274.670		V I	19
6274.94		Cr II	196
6276.310		Sc I	2
6277.525		Ti I	144
6278.30		Au I	1
6279.757		Sc II	28
6279.84		Hf II	13
6280.625		Fe I	13
6282.636		Co I	37
6282.92		Cr II	196
6284.00	P	Fe I	624
6284.30		N II	32
6285.185		V I	19
6286.35		S II	19
6287.06		S II	26
6290.55	P	Fe I	208
6290.968		Fe I	1258
6292.858		V I	19
6293.00	P	Ti I	103
6293.92	P	Fe I	1260
6295.251		Ti I	1,144
6295.949		Ti I	144
6296.08		La II	47,68
6296.518		V I	19
6296.646		Ti I	1
6297.800		Fe I	62
6298.075		Ti I	144
6299.07		Gd II	123
6299.74	P	Fe III	3
6300.363		Ni I	246
6300.697		Sc II	28
6301.515		Fe I	816
6301.86	P	Fe I	863
6302.507		Fe I	816
6303.41		Eu II	8
6303.46		Fe I	1140
6303.754		Ti I	104
6304.35		Zr I	24
6305.15		Gd II	94
6305.262		Pr II	39
6305.318		Fe II	200
6305.46		La II	5
6305.51		S II	19
6305.60		Cr II	
6305.671		Sc I	2
6306.047		Sc I	3
6306.17		Hf II	81
6306.19	P	Fe I	1230
6307.25		La II	117
6307.85	P	Fe I	863
6309.902		Sc II	28
6310.543		Fe I	405
6310.8		He II	7
6310.91		La II	103
6311.289		Ti I	103
6311.506		Fe I	342
6312.240		Ti I	104
6312.68		S II	26
6313.05		Zr I	65

I A	Type	Element	Multiplet No.
6313.57		Zr II	136
6314.22		Gd II	121
6314.29		S II	28
6314.666		Ni I	67
6314.67	P	Ni I	249
6315.316		Fe I	1015
6315.42	P	Fe I	1016
6315.79		La II	117
6315.814		Fe I	1014
6316.61		Ni I	248
6318.022		Fe I	168
6318.027		Ti I	103
6318.11		Ca I	53
6318.23		Mg I	23
6318.75		Mg I	23
6320.39		La II	19
6320.854		Sc II	28
6322.165		Ni I	249
6322.693		Fe I	207
6322.98	P	Fe III	3
6323.39		O I	31
6324.45		A II	
6324.84		O I	31
6325.22		Ti I	1
6325.90		La I	2
6326.43		S II	63
6326.845		V I	84
6327.603		Ni I	44
6328.6		N II	46
6329	P	O V	14
6330.101		Cr I	6
6330.856		Fe I	1254
6331.969		Fe II	199
6334.4279		Ne I	1
6335.335		Fe I	62
6335.74		Al II	22
6336.104		Ti I	103
6336.835		Fe I	816
6338.896		Fe I	1258
6339.090		V I	84
6339.148		Ni I	248
6339.96	P	Fe I	685
6340.67		N II	46
6341.682		Ba I	6
6342.682		Sc II	28
6343.29		Ca I	53
6343.963		Ce II	
6344.154		Fe I	169
6344.831		Sc I	1
6346.54		Zr II	128
6346.65		Gd II	96
6346.67		Mg II	16
6347.091		Si II	2
6347.1		N II	46
6347.843		Co I	200
6348.50		F I	3
6349.477		V I	84
6349.748		Mn I	39
6351.17		O I	61
6351.29	P	Fe I	1140
6351.448		Co I	200
6353.84	P	Fe I	13
6355.038		Fe I	342
6356.057		Mn I	39
6356.293		Fe I	208
6357.0		N II	46
6357.10	P	Zr I	2
6357.297		V I	84
6358.12		La II	47
6358.692		Fe I	13
6359.896		Ti I	1
6360.798		Ni I	229
6361.41		Ti I	196
6361.79		Ca I	53
6362.286		Sc I	1
6362.347		Zn I	6
6362.414		Ni I	
6362.874		Cr I	6
6362.889		Fe I	1019
6364.384		Fe I	1253
6364.597		Ni I	67
6364.717		Fe I	1229
6364.92		Ti I	1
6365.7		N II	2
6366.33		O I	60
6366.354		Ti I	103
6366.483		Ni I	230
6369.34		S II	19
6369.45		Fe II	40
6370.383		Ni I	127
6371.359		Si II	2
6374.08		La II	111
6374.31		O I	59
6375.96		Fe II	
6376.00		A II	61
6376.22	P	Fe I	1140
6378.263		Ni I	247
6378.824		Sc I	1
6378.91		Ba II	12
6379.63		N II	2
6380.11		V II	231
6380.748		Fe I	1015
6380.95		Gd II	111
6381.416		Ti I	196
6382.169		Mn I	39
6382.9914		Ne I	3
6383	P	N IV	2
6383.753		Fe II	
6384.669		Mn I	39
6384.697		Ni I	246
6384.89		S II	19
6385.196		Nd II	85
6385.473		Fe II	
6385.74	P	Fe I	1253
6386.48		S II	5
6386.75		Fe II	203
6388.41	P	Fe I	685
6390.48		La II	33
6391.214		Mn I	39
6392.534		Fe I	109
6393.605		Fe I	168
6394.23		La I	7
6395.158		Co I	174
6395.16		Ca I	
6395.27		S II	
6396.39	P	Fe I	921
6397.30		S II	19
6398.05		S II	19
6399.04		La II	104
6399.23		A II	21
6399.41		Cl II	58
6400.010		Fe I	816
6400.335		Fe I	13
6402.005		Y I	2
6402.2455		Ne I	1
6402.43	P	Fe I	1344
6403.58		S I	9
6405.89		Ca I	
6406.3		He II	7
6406.42		Fe I	1334
6407.03		Zr I	2
6407.30		Fe II	74
6408.031		Fe I	816
6408.13		S I	9
6408.463		Sr I	8
6410.98		La I	7
6411.10	P	Fe I	1256
6411.658		Fe I	816
6412.20	P	Fe I	169
6413.13	P	Ti I	1
6413.353		Sc I	1
6413.66		F I	3
6413.71		S II	19
6413.92		Mn I	39
6414.603		Ni I	244
6415.24		Si I	
6415.50		S I	9
6415.59		Cr II	196
6416.905		Fe II	74
6416.94	P	Fe I	1253
6417.824		Co I	111
6418.87		Cr II	196
6419.15		Ti I	196
6419.65	P	Fe I	958
6419.982		Fe I	1258
6420.47		N I	23
6421.355		Fe I	111
6421.507		Ni I	258
6424.905		Ni I	227
6428.80		Fe I	1138
6429.913		Co I	81
6430.471		V I	107
6430.78		Ta I	11
6430.851		Fe I	62
6431.620		V I	107
6432.06		Ni I	126
6432.654		Fe II	40
6433.17		V I	107
6433.85		Fe II	199
6434.44	P	Fe III	3
6435.02		Y I	2
6435.148		V I	107
6436.43		Fe I	1016
6437.01		N I	23
6437.63		A II	25
6437.64		Eu II	8
6438.4696		Cd I	3
6438.775		Fe I	1158
6439.073		Ca I	18
6440.974		Mn I	39
6441.70		N I	23
6441.95		A II	
6442.97		Fe II	
6443.05		La II	117
6443.492		Mn I	39
6445.05		N III	14
6445.76		Zr I	57
6446.281		Mn II	19
6446.43		Fe II	199
6446.62		La II	104
6448.10		Sc I	1
6449.810		Ca I	19
6450.09	P	Co I	80
6450.230		Co I	37
6450.78		N III	14
6450.854		Ba I	6
6450.99		Fe I	1344
6451.58		Fe I	921
6451.580		Ni I	257
6452.354		V I	48
6452.77		Ni I	226
6453.50		Sn II	1
6453.64		O I	9
6453.95		N III	14
6454.48		O I	9
6454.998		Co I	174
6455.600		Ca I	19
6455.85		Hf II	82
6455.99		La I	1
6456.01		O I	9
6456.376		Fe II	74
6456.87	P	Fe I	1256
6456.907		Ca II	19
6457.93		N I	22
6458.68	P	Fe III	3
6460.1		P II	32
6462.210		Mn II	20
6462.454		Mn II	20
6462.566		Ca I	18
6462.72	P	Fe I	13
6462.731		Fe I	168
6462.799		Mn II	20
6463.03		N III	14
6463.11		Lu II	2
6463.195		Mn II	20
6463.637		Mn II	20
6464.67	P	Fe I	13
6464.70		Ca I	19
6466.86		N III	14
6466.97		V I	32
6468.32		N I	22
6468.77		N III	14
6468.86	P	Fe I	1254
6469.12	P	Fe I	168
6469.214		Fe I	1258
6470.25		Zr I	65
6471.660		Ca I	18
6472.15	P	Fe I	1140
6472.34		Sm II	60
6473.89		Hf II	91
6474.558		Co I	165
6474.61		Fe I	861
6475.632		Fe I	206
6477.861		Co I	174
6478.69		N III	14
6480.11		Gd II	109
6481.73		N I	21
6481.878		Fe I	109
6482.07		N II	8
6482.205		Fe II	199
6482.74		N I	21
6482.811		Ni I	66
6483.10		A II	27
6483.75		N I	21
6483.95	P	Fe I	34
6484.88		N I	21
6485.36		Ta I	12
6487.43		Fe II	203
6487.48	P	Fe III	3
6487.55		N III	14

I A	Type	Element	Multiplet No.
6489.10		Yb I	3
6489.68		Zr I	65
6490.344		Co I	81
6491.28		Fe II	
6491.28		N I	21
6491.61	P	Ti II	91
6491.712		Mn I	39
6492.0		N II	45
6493.05		Fe II	
6493.780		Ca I	18
6494.11		Gd I	123
6494.52	P	Fe I	1255
6494.985		Fe I	168
6495.45		Al II	65
6495.779		Fe I	1253
6496.456		Fe I	1258
6496.896		Ba II	2
6497.689		Ti I	102
6498.19		La II	104
6498.759		Ba I	6
6498.950		Fe I	13
6499.52		N I	21
6499.649		Ca I	18
6500.25		A II	26
6501.212		Cr I	16
6501.681		Fe I	
6503.989		Sr I	8
6504.164		V I	48
6504.9		N II	45
6506.33		Fe II	
6506.45		N I	21
6506.5279		Ne I	3
6508.135		Ti I	102
6508.742		Ca I	18
6509.16		A II	21
6509.56		Fe I	1012
6511.62		Hf II	69
6512.61		Hf II	49
6516.026		Cr I	265
6516.053		Fe II	40
6517.01		Fe II	
6517.27		V II	230
6518.376		Fe I	342
6519.371		Mn I	39
6521.39		S II	25
6522.3		N II	45
6522.38		Cl II	59
6524.76	P	Fe I	1280
6526.99		La II	33
6527.20	P	Si I	52
6527.312		Ba I	6
6527.49		Si I	62
6528.53		Fe I	
6529.197		Cr I	265
6531.44		V I	48
6531.66		Hf II	48
6532.891		Ni I	64
6533.0		N II	45
6533.97		Fe I	1197
6537.921		Cr I	16
6539.72		Fe I	405
6541.49	P	Fe I	1195
6542.80		Hf II	100
6543.17		La I	7
6543.51		V I	48
6543.98		Fe I	1139
6545.2		N II	45
6545.80		Mg II	23
6546.245		Fe I	268
6546.276		Ti I	102
6546.791		Sr I	8
6547.58	P	Fe I	13
6548.72		Hf II	
6550.01		Hf II	111
6550.244		Sr I	12
6551.466		Co I	54
6551.68	P	Fe I	13
6552.77		Fe I	1325
6554.18		La II	109
6554.226		Ti I	102
6555.20		Si I	62
6555.87	P	Fe I	1007
6556.066		Ti I	102
6556.79.		Fe I	1255
6557.40		Y I	1
6557.87		Sc I	24
6557.91		Hf II	66
6558.02		V I	59
6558.05		Sc I	24
6559.580		Ti II	91

I A	Type	Element	Multiplet No.
6560.099		He II	2
6560.68		Si I	62
6561.032		D	1
6562.817		H	1
6563.403		Co I	80
6563.86		Hf II	81
6565.62		Ti I	
6565.88		V I	48
6567.22	P	Fe I	168
6567.39		Hf II	90
6568.00		Gd II	121
6569.261		Fe I	1253
6569.31		Sm II	62
6570.0		He II	7
6570.834		Mn I	51
6570.96		La II	47
6571.22		Fe I	1121
6572.781		Ca I	1
6572.900		Cr I	16
6574.238		Fe I	13
6575.022		Fe I	206
6575.180		Ti I	286
6576.95	P	Ni I	283
6578.03		C II	2
6578.51		La I	1
6578.96		V I	32
6580.22		Ni I	265
6580.96		Cr I	16
6581.22		Fe I	34
6582.85		C II	2
6584.53		Hf II	99
6584.89		Y I	1
6586.328		Ni I	4
6586.343		Mn I	51
6586.69		Fe II	
6587.75		C I	22
6588.91		Sm I	1
6591.32		Fe I	1229
6591.834		Co I	202
6592	P	C IV	10
6592.472		Ni I	248
6592.91	P	Ti I	102
6592.919		Fe I	268
6593.878		Fe I	168
6595.326		Ba I	6
6595.869		Co I	174
6597.556		Cr I	282
6597.607		Fe I	1253
6598.594		Ni I	249
6598.9529		Ne I	6
6599.112		Ti I	19
6601.13	P	Fe I	1280
6603.20	P	Fe I	862
6603.67	P	Fe I	860
6604.60		Sc II	19
6604.67		Fe I	1254
6605.546		Mn I	51
6605.98		V I	48
6607.02	P	Ti II	91
6607.82		V I	19
6608.03		Fe I	109
6609.116		Fe I	206
6609.20		Hf II	105
6609.56		Fe I	
6609.64		Al II	76
6609.68	P	Fe I	13
6610.04		Gd II	108
6610.58		N II	31
6612.17		Cr I	282
6613.74		Y II	26
6613.83	P	Fe I	13
6615.03	P	Fe I	1155
6617.126		Co I	202
6617.14	P	Ni I	248
6617.266		Sr I	8
6621.24		Ni I	97
6622.28		Gd II	110
6622.41	P	Fe I	1157
6622.53		N I	20
6623.78	P	Fe I	1010
6624.86		V I	48
6625.04		Fe I	13
6627.28		Fe II	210
6627.558		Fe I	1174
6627.62		O II	85
6630.015		Cr I	16
6630.5		N II	41
6632.438		Co I	111
6633.44		Fe I	1258
6633.764		Fe I	1197

I A	Type	Element	Multiplet No.
6634.10	P	Fe I	1258
6634.36		Gd II	94
6635.15		Ni I	264
6635.68	P	Fe I	1155
6636.53		La II	61
6637.01		N I	20
6638.24		A II	20
6639.35	P	Fe I	1279
6639.71	P	Fe I	1195
6639.72		A II	20
6639.90	P	Fe I	1007
6640.90		O II	4
6641.06		S II	25
6642.79		La II	103
6643.023		Cr I	256
6643.536		Sr I	8
6643.641		Ni I	43
6643.79		A II	20
6644.60		Hf II	34
6644.96		N I	20
6645.11		Eu II	8
6646.52		N I	20
6646.90	P	Fe I	1156
6646.98		Fe I	206
6647.06		Hf II	65
6647.90	P	Fe I	551
6648.08	P	Fe I	13
6653.41		N I	20
6653.75		Cl II	38
6653.78		O I	65
6653.88		Fe I	1052
6656.61		N I	20
6657.54		Cr I	282
6660.49		Si II	
6661.076		Cr I	282
6661.39		Ni I	246
6661.68		Cl II	38
6663.26		Fe I	1195
6663.446		Fe I	111
6665.42	P	Fe I	1156
6665.43	P	Fe I	34
6666.36		A II	25
6666.548		Ti I	101
6666.94		O II	85
6667.17	P	Fe I	110
6667.42	P	Fe I	168
6667.73		Fe I	1228
6669.257		Cr I	282
6671.36		Fe I	1343
6671.41		La II	33
6671.43	P	Fe I	1255
6671.51		Sm I	1
6671.88		Si II	
6672.84		V II	229
6672.88	P	Fe I	205
6673.84	P	Fe I	1254
6675.271		Ba I	6
6676.86	P	Fe I	1194
6677.24		Cr I	256
6677.25		Ti I	274
6677.33		Fe II	210
6677.49	P	Fe I	1280
6677.54	P	Fe I	551
6677.96	P	Fe I	205
6677.993		Fe I	268
6678.03		Zr II	128
6678.149		He I	46
6678.19		O II	85
6678.2764		Ne I	6
6678.60	P	Ti I	213
6678.818		Co I	54
6680.19		Cr I	282
6680.26		Ti II	112
6681.03		Cl II	38
6681.23		Gd II	94
6681.34	P	Fe I	1155
6682.23	P	Fe I	1008
6683.2		He II	7
6684.36		A II	20
6686.04		Cl II	38
6687.57		Y I	1
6690.80		Ni I	140
6692.47	P	Fe I	1192
6693.842		Ba I	6
6695.97		Al I	5
6696.30	P	Fe I	1255
6696.39		Al II	29
6698.63		Al I	5
6699.14		Fe I	1228
6699.46		Al II	29

I A	Type	Element	Multiplet No.
6700.89	P	Fe I	1156
6700.90	P	Fe I	1333
6700.90	P	Ni I	248
6701.64		Cr I	256
6702.12		Gd II	130
6703.573		Fe I	268
6704.18		Gd II	110
6704.48	P	Fe I	1052
6705.117		Fe I	1197
6705.13	P	Fe I	1280
6706.20		N I	31
6707.74		Li I	1
6707.89		Li I	1
6708.27		F I	2
6708.81		N I	
6709.49		La I	6
6709.88		Ca I	45
6710.31		Fe I	34
6711.24	P	Fe I	1220
6712.44	P	Fe I	1279
6712.68	P	Fe I	206
6713.14		Fe I	1013,1195
6713.43		Cl II	38
6713.76		Fe I	1255
6714.08		La II	103
6715.38		Cr I	282
6715.410		Fe I	1174
6716.24		Fe I	1225
6716.679		Ti I	273
6717.556		Fe I	1194
6717.685		Ca I	32
6717.911		Ti II	112
6718.14		Gd II	130
6718.68		La II	129
6719	P	N V	11
6719.40		Hf II	110
6721.35		O II	4
6721.97		Si I	
6722.67		Si I	38
6723.12		N I	31
6725.35		Fe I	1052
6726.25		O I	2
6726.50		O I	2
6726.668		Fe I	1197
6726.78		Fe I	
6726.84		C II	21
6727.1	P	C III	3
6727.83		Gd II	96
6729.72		Cr I	301
6729.80	P	Si I	61
6730.38	P	Si I	61
6730.7	P	C III	3
6730.73		Gd I	2
6730.79		C II	21
6731.84		Sm II	59
6732.06		Fe I	1225
6732.80		La II	109
6732.88		S II	25
6733.164		Fe I	1195
6733.48		N I	31
6733.56		C II	21
6734.16		Cr I	282
6735.00	P	Fe I	1157
6736.56	P	Fe I	1122
6737.29	P	Fe I	551
6737.87		Sc I	
6738.36		C II	21
6738.81		Cr I	315
6739.54		Fe I	34
6741.29		N I	31
6742.05		C II	21
6743.124		Ti I	48
6743.58		S I	8
6744.2	P	C III	3
6744.66		Cr I	315
6745.11		Fe I	1227
6745.5[illegible]	P	Ti I	226
6745.[illegible]	P	Fe I	1005
6746.4		Ti I	152
6746.96	P	Fe I	205
6748.43		Ti I	152
6748.79		S I	8
6749.52	P	Fe I	860
6750.152		Fe I	111
6750.22		C II	21
6751.28		Cr I	315
6751.94		Ti I	152
6752.40		N I	30
6752.67		Gd II	130
6752.724		Fe I	1195

I A	Type	Element	Multiplet No.
6752.832		A I	11
6753.00		V I	31
6753.45	P	Fe I	1196
6754.61		Hf II	35
6754.75		C II	21
6755.609		Fe I	
6756.56	P	Fe I	1120
6756.61		A II	20
6757.16		S I	8
6757.78		Cr I	315
6758.60		N I	30
6759.41		Ni I	245
6759.42		Cl II	54
6761.07	P	Fe I	1227
6762.38		Zr I	1
6762.41		Cr I	315
6764.13	P	Fe I	1225
6766.49		V I	31
6767	P	O V	12
6767.778		Ni I	57
6769.62		Ba II	8
6769.66	P	Fe I	1226
6771.040		Co I	54
6772.36		Ni I	127
6773.97		F I	2
6774.28		La II	2
6775.97		Al II	111
6777.44		Fe I	1010,1013
6779.74		C II	14
6780.27		C II	14
6783.27	P	Fe I	206
6783.71		Fe I	205
6783.75		C II	14
6784.98		V I	31
6785.25	P	Ti II	112
6785.76	P	Fe I	1226
6785.88	P	Fe I	1007
6786.41	P	Fe I	551
6786.88		Fe I	1052
6787.09		C II	14
6787.15		Zr II	135
6787.61	P	Fe I	1156
6789.17		Cr I	
6790	P	O V	12
6790.00		Sm II	56
6791.022		Sr I	3
6791.30		C II	14
6793.26		Fe I	1005
6793.62		Fe I	
6793.71		Y I	1
6794.60	P	Fe I	1279
6795.41		Y II	26
6795.52		F I	2
6796.11		Fe I	1007
6798.04		C II	14
6798.51		Ca I	31
6799.32		A II	74
6799.61		Yb I	3
6800.50		C II	14
6801.16		V II	219
6801.31	P	Fe I	551
6801.38		La II	130
6801.87	P	Fe I	34
6803.30	P	Fe I	1192
6803.84	P	Fe I	1191
6804.020		Fe I	1174
6804.27		Fe I	1225
6805.72	P	Fe I	1220
6806.851		Fe I	268
6808.55		A II	24
6808.80	P	Fe I	340
6808.88		La II	1
6810.28		Fe I	1197
6812.19		C II	14
6812.26		N II	54
6812.40		V I	31
6813.55	P	Fe I	1288
6813.598		Ni I	288
6813.68		La II	110
6813.85	P	Si I	61
6814.950		Co I	54
6816.69		Al II	9
6817.08		Sc I	
6818.39		A II	50
6819	P	O V	12
6819.42	P	Fe I	463
6819.60	P	Fe I	1051
6820.43		Fe I	1197
6822.00	P	Fe I	1220
6822.05	P	Fe I	110

I A	Type	Element	Multiplet No.
6823.48		Al II	9
6824.82	P	Fe I	1280
6828.25		Gd I	2
6828.5		C I	21
6828.610		Fe I	1195
6829.92		Co I	81
6829.94		V I	31
6830	P	O V	12
6830.83		La II	108
6831.44	P	Fe I	550
6831.62		Cl II	44
6832.44		V I	31
6832.49		Y II	26
6832.93		Zr I	1
6833.24		Fe I	1194
6834.07		La II	3
6834.26		F I	2
6835.03		Sc I	
6835.29		Hf II	13
6836.2		N II	54
6837.00		Fe I	1225
6837.14		Al II	9
6837.91		La II	33
6838.08		Fe I	1192
6838.86		Fe I	
6839.828		Fe I	205
6841.349		Fe I	1195
6841.65	P	Fe I	1333
6841.86		Cl II	54
6841.89		V I	31
6842.07		Ni I	126
6842.35	P	Si I	61
6842.668		Fe I	1197
6843.671		Fe I	1173
6844.05		Sn II	1
6844.67	P	Fe I	34
6845.24		Y I	16
6845.93	P	Fe I	1190
6846.60		Gd II	94
6846.97		O II	45
6847.60	P	Fe I	1078
6848.65		Si I	37
6848.86	P	Fe I	1192
6850.07		Hf II	
6850.21		Cl II	54
6850.48		Ni I	157
6851.64	P	Fe I	34
6854.82		Fe I	1224a
6855.176		Fe I	1195
6855.74		Fe I	1194
6856.02		F I	2
6856.03		Sm II	58
6857.13		Gd II	122
6857.25		Fe I	1006
6857.3	P	C III	19
6857.6		N II	71
6858.164		Fe I	1173
6858.25		Y II	26
6859.03		La II	34
6859.49	P	Fe I	340
6860.13	P	Fe I	1255
6860.29		Fe I	205
6860.96	P	Fe I	341
6861.24		Ni I	293
6861.30		A II	25
6861.47		Ti I	237
6861.93		Fe I	109
6862.481		Fe I	1191
6862.82		Sm II	55
6862.9	P	C III	19
6863.52		A II	20
6864.31	P	Fe I	1186
6869.74		O II	45
6870.22		F I	2
6870.8		N II	71
6871.7	P	C III	19
6872.32		Co I	54
6874.09		Ba II	8
6875.45		Fe I	167
6875.98		Fe I	1013
6876.71		Ni I	97
6878	P	O V	12
6878.313		Sr I	3
6879.51	P	Fe I	1157
6879.59	P	Fe I	551
6880.65		Fe I	1051
6881.07	P	Fe I	1174
6881.46		Fe I	
6881.64		Cr I	222
6881.74		Fe I	1194

I A	Type	Element	Multiplet No.
6882.48		Cr I	222
6883.04		Cr I	222
6885.07		O II	45
6885.772		Fe I	1173
6886.57		A II	20
6887.63		Gd II	
6888.7		N II	71
6890.88		He II	7
6892.585		Sr I	1
6894.92	P	Mg I	34
6895.29		O II	45
6896.00		Y II	26
6898.31		Fe I	1078
6900.73		Gd II	122
6901.52		Co I	164
6902.46		F I	2
6902.80		Fe I	
6906.54		O II	45
6908.08		Co I	164
6908.11		O II	45
6909	P	O V	12
6909.82		F I	2
6910.75		O II	45
6910.84		Co I	80
6911.52		Fe I	109
6912.43	P	Fe I	341
6914.562		Ni I	62
6916.57		Gd I	2
6916.702		Fe I	1052
6917.52	P	Fe I	1190
6917.93		Al II	75
6919.96		Al II	15
6920.16	P	Fe I	1192
6920.62		Gd II	122
6924.13		Cr I	222
6925.24		Cr I	222
6926.04		Cr I	222
6926.40	P	Fe I	1222
6926.90		N I	29
6928.25		Ni I	110
6928.319		Zn I	10
6928.52	P	Ni I	61
6929.4678		Ne I	6
6929.96	P	Fe I	34
6930.35	P	Fe I	1186
6930.64		Fe I	1221
6932.49	P	Fe I	1220
6933.04		Fe I	1051
6933.55		Y I	1
6933.628		Fe I	167,1005
6935.16		Hf II	35
6936.27		K I	7
6936.48	P	Fe I	1196
6937.81		Co I	139
6938.472		Zn I	10
6942.82	P	Fe I	1008
6942.9		N II	53
6943.202		Zn I	10
6943.67	P	Fe I	1349
6945.208		Fe I	111
6945.22		N I	29
6945.98		Gd II	122
6946.31		Co I	110
6947.501		Fe I	1221,1224
6949.37	P	Fe I	1220
6950.32		Y I	16
6950.82	P	Fe I	205
6951.261		Fe I	1186,1193
6951.62	P	Fe I	1078
6951.68		Y II	33
6952.13		Cl II	54
6952.52		La II	18
6953.01	P	Fe I	815
6954.54		La II	1
6955.06		Ni I	157
6957.95		S II	18
6958.11		La II	67
6959.24		Gd II	130
6960.334		Fe I	1222
6963.02	P	Fe I	1007
6964.18		K I	7
6964.69		K I	7
6965.42	P	Mg I	33
6965.4302		A I	1
6966.35		F I	6
6966.9		Fe II	198
6967.6		N II	53
6968.78		La II	109
6970.48	P	Fe I	463
6971.66		Gd II	130

I A	Type	Element	Multiplet No.
6971.95		Fe I	404
6975.46		Fe I	
6976.306		Fe I	1194
6976.53		Si I	60
6976.8		N II	53
6976.934		Fe I	1221
6977.445		Fe I	1225
6978.46		Cr I	222
6978.855		Fe I	111
6979.10		N I	29
6979.17	P	Fe I	340
6979.82		Cr I	222
6980.86		Gd II	
6980.91		Cr I	222
6980.91		Hf II	22
6981.40		S II	18
6983.53	P	Fe I	1220
6983.54	P	Fe II	63
6985.74		A II	137
6985.89		Gd II	
6988.530		Fe I	167
6988.75		Gd II	130
6989.64	P	Fe I	1191
6990.16		A II	20
6991.92		Gd I	2
6995.35		Ta I	5
6996.63		Ti I	256
6996.76		Gd II	121
6997.13	P	Fe I	1273
6997.83		Hf II	89
6999.902		Fe I	1051
7000.633		Fe I	1005
7000.75		Gd II	122
7001.57		Ni I	64
7001.93		O I	21
7002.22		O I	21
7003.0		N II	53
7003.58		Si I	60
7004.60		Ti I	256
7004.81		Co I	89
7005.84		Si I	60
7006.16		Gd II	130
7007.81		Ti I	100
7008.014		Fe I	1078
7008.35		Ti I	256
7010.362		Fe I	1221
7010.94		Ti I	256
7011.364		Fe I	1221
7014.99		Fe I	167
7015.3		N II	53
7016.075		Fe I	109
7016.436		Fe I	1051
7016.602		Co I	54
7016.90	P	Si I	51
7016.99		Hf II	99
7017.68		Si I	51
7017.73		Gd II	137
7017.98		Si I	51
7020.44		Sm II	59
7021.23		Hf II	67
7022.39	P	Fe I	1078
7022.976		Fe I	1051
7024.0508		Ne I	6
7024.084		Fe I	1003
7024.649		Fe I	1187
7024.86		Ni I	271
7025.52		O I	32
7027.60		Fe I	1221
7027.797		Co I	179
7028.58	P	Fe I	463
7028.60	P	Ni I	156
7028.95	P	Ni I	61
7030.06		Ni I	126
7030.33		Hf II	66
7031.02	P	Fe I	1173
7031.42	P	Fe I	1278
7032.16		Ni I	279
7032.4127		Ne I	1
7034.06	P	Fe I	1190
7034.08	P	Fe I	1190
7034.42		Ni I	97
7034.96		Si I	50
7035.86		Ti I	307
7037.04	P	Fe I	61
7037.26		Gd II	
7037.37		Ni I	288
7037.45		F I	6
7038.251		Fe I	1051
7038.80		Ti I	256
7038.818		Fe I	1078

I A	Type	Element	Multiplet No.
7039.22		Sm II	57,61
7039.36		Ti I	307
7042.06		Al II	3
7042.24		Sm II	58
7044.60		Fe I	1276
7045.8		C II	26
7045.96		La I	6
7050.65		Ti I	256
7051.00		Gd II	122
7052.872		Co I	54
7052.9		C II	26
7053.48	P	Fe I	1186
7054.042		Co I	140
7054.62		Gd II	130
7055.01		A II	74
7056.60		Al II	3
7057.96	P	Fe I	815
7058.02		Gd II	130
7059.941		Ba I	5
7060.43	P	Mg I	32
7061.90		Hf II	
7062.80	P	Fe I	1273
7062.97		Ni I	64
7063.4		C II	26
7063.57		Ni I	270
7063.64		Al II	3
7065.15		Ti I	100
7065.188		He I	10
7065.719		He I	10
7066.15	P	Fe I	1277
7066.24		La II	1
7067.2170		A I	1
7067.44		Fe II	
7067.50		Ni I	277
7068.02	P	Fe I	1276
7068.37		La I	1
7068.415		Fe I	1004
7068.60	P	Fe I	1276
7069.11		Ti I	307
7069.54	P	Fe I	205
7070.071		Sr I	3
7071.88		Fe I	1194
7072.82	P	Fe I	1003
7074.45	P	Fe I	1173
7077.03		A II	20
7077.10		Eu II	8
7079.32	P	Fe I	1278
7082.22		Ni I	267
7082.37		Sm II	55
7083.396		Fe I	1277
7084.25	P	Ti I	99
7084.33		Si I	60
7084.974		Co I	54
7085.52		Gd II	130
7086.76		Fe I	815,1311
7087.35		Zr I	42
7089.03	P	Si I	70
7089.73	P	Fe I	1220
7090.404		Fe I	1051
7090.55		A II	60
7091.83		Fe I	1278
7091.91	P	Fe I	1277
7093.10	P	Fe I	1189
7094.30	P	Fe I	778
7095.40		Ni I	276
7095.425		Fe I	1105
7097.78		Zr I	42
7100.20	P	Fe I	267
7101.28	P	Fe I	61
7102.95		Zr I	42
7103.15	P	Fe I	167
7103.28		N IV	4
7103.77		Zr I	42
7105.34	P	Si I	70
7105.90	P	Fe I	1008
7107.30	P	Fe I	1324
7107.461		Fe I	1005
7109.48		N IV	4
7109.67	P	Fe I	1190
7110.91		Ni I	64
7111.28		N IV	4
7111.71		Zr I	23
7112.176		Fe I	404
7112.36		C II	20
7114.55	P	Fe I	267
7115.13		C II	20
7115.25	P	Fe I	1186
7116.77		Gd II	130
7118.12	P	Fe I	1278
7118.5		C I	26

I A	Type	Element	Multiplet No.
7118.86		Gd II	130
7119.45		C II	20
7120.01	P	Fe I	1187
7120.56	P	Fe I	1006
7122.24		Ni I	126
7123.10		N IV	4
7124.28		S II	18
7124.47		Co I	53
7125.00	P	Fe I	815
7125.28	P	Fe I	1220
7125.49		C II	20
7126.71		Ni I	97
7127.21		N IV	4
7127.58	P	Fe I	1273
7127.88		F I	6
7129	P	N IV	4
7129.30	P	Fe I	1219
7130.34	P	Ti I	100
7130.942		Fe I	1051
7131.29		Al II	114
7132.989		Fe I	1002
7133.16		Gd II	137
7133.52		C II	20
7134.290		Co I	179
7134.66		Al II	114
7134.99		Fe II	197
7135.73		Gd II	
7138.05	P	Ti I	98
7138.81		Al II	114
7138.91		Ti I	99
7139.79		S II	18
7139.8		N II	52
7141.17		Gd II	131
7141.62		Ni I	283
7142.522		Fe I	1274
7145.317		Fe I	1186,1193
7146.13		Gd II	130
7147.0406		A I	1
7147.31		Gd II	
7148.147		Ca I	30
7148.61		Ta I	11
7148.69		Fe I	1078,1339
7151.18	P	Sc II	27
7151.495		Fe I	109
7154.688		Co I	89
7155.64		Fe I	1276
7156.80		O I	38
7158.502		Fe I	815
7160.33		Ti I	98
7160.85	P	Fe I	1310
7161.04	P	Fe I	1190
7162.37	P	Fe I	1278
7164.469		Fe I	1051
7164.63		S II	18
7164.75		Si I	49
7164.90		Gd II	130
7165.09	P	Si I	49
7165.62		Si I	48
7167.01		Ni I	109
7168.37		Gd I	1
7169.14		Zr I	42
7170.14		Ni I	282
7172.26		Gd II	109
7173.73		Ni I	269
7173.9389		Ne I	6
7175.937		Fe I	1188
7176.886		Fe I	1276
7177.50		He II	6
7178.33	P	Sc II	27
7179.16	P	Fe II	72
7180.020		Fe I	33
7181.21	P	Fe II	72
7181.222		Fe I	1078
7181.93		Fe I	1274
7182.00		Ni I	126
7184.54		Si I	25
7184.89		Si I	25
7185.50		Cr I	264
7187.341		Fe I	1051
7188.06		Cr I	264
7188.55		Ti I	99
7188.7		N II	52
7189.17		Fe I	463
7189.57		Gd II	138
7189.89		Ti I	285
7190.12	P	Fe I	463
7191.66		Fe I	1274
7193.20	P	Mg I	31
7193.23		Fe II	197
7193.56		Si I	25

I A	Type	Element	Multiplet No.
7193.74		Y II	33
7193.89		Si I	25
7194.02	P	Fe I	1307
7194.81		Eu II	8
7194.92		Fe I	1273
7195.235		Ba I	10
7196.37	P	Fe I	1252
7196.83		Cr I	264
7197.07		Ni I	62
7197.08		Gd II	121
7202.194		Ca I	29
7202.37		F I	6
7205.51	P	Fe I	1251
7207.123		Fe I	1001
7207.406		Fe I	1051
7207.85		Cr I	264
7208.20		Si I	25
7209.44		Ti I	99
7212.47		Fe I	1273
7213.35		Ti I	143
7213.84	P	Fe I	1105
7214.78	P	Ti II	101
7214.97		Ti I	314
7216.20		Ti I	98
7216.68	P	Fe I	1273
7217.0		N II	52
7217.34		Co I	126
7217.55		Eu II	8
7218.57		Cr I	264
7219.686		Fe I	1001
7220.79		Ni I	294
7221.22		Fe I	1189
7222.39		Fe II	73
7222.88		Fe I	1187,1311
7223.668		Fe I	463
7224.51		Fe II	73
7225.82	P	Fe I	1278
7226.20		Si I	26
7228.70		Fe I	267
7228.974		Pb I	2
7231.12		C II	3
7233.58		A II	
7235.32		Si I	26
7235.86		Si I	25
7236.19		C II	3
7236.91		S II	18
7239.885		Fe I	1105
7242.24		Gd II	137
7244.77		S I	15
7244.86		Fe I	1276
7244.86		Ti I	99
7245.1668		Ne I	3
7247.82		Mn I	
7250.12		Co I	53
7250.69		Si I	25
7251.74		Ti I	99
7252.70		Gd II	109
7253.76		Ti I	143
7254.19		O I	20
7254.47		O I	20
7254.649		Fe I	
7255.28	P	Si I	59
7256.13	P	Fe I	1278
7256.63		Cl I	5
7256.72		Ni I	97
7256.96		S II	18
7259.3		N II	52
7261.00	P	Fe I	267
7261.29	P	Fe I	1273
7261.54		Fe I	1188
7261.94		Ni I	62
7262.46	P	Fe I	859
7264.19		Y II	33
7264.99		Fe II	197
7266.22		Ni I	288
7266.29		Ti I	143
7267.00	P	Fe I	61
7268.58	P	Fe I	957
7271.41		Ti I	97
7273.20		S II	18
7273.77		Ti I	212
7275.28		Si I	24
7277.67		Hf II	66
7278.48	P	Fe I	1274
7278.72		Hf II	111
7280.298		Ba I	5
7281.349		He I	45
7282.36		La II	1
7282.39		Fe I	1274
7283.80		Mn I	50

I A	Type	Element	Multiplet No.
7284.27		A II	24
7284.843		Fe I	1004
7285.28		Co I	140
7285.286		Fe I	1188
7285.94	P	Si I	58
7286.56		Ni I	109
7287.36		Fe II	197
7288.760		Fe I	1077
7289.05	P	Fe II	72
7289.25		Si I	24
7290.21		Si I	24
7290.87		Ni I	287
7291.03	P	Ti I	143
7291.48		Ni I	63
7292.856		Fe I	1189
7293.068		Fe I	1077
7295.00		Fe I	1187
7295.27	P	Fe I	1189
7297.75		Ni I	293
7299.67		Ti I	97
7300.47		Fe I	1275
7300.59	P	Fe I	1003
7301.17		Eu II	8
7301.57	P	Fe II	72
7302.89		Mn I	50
7305.87		Ti I	143
7306.61		Fe I	1077
7307.938		Fe I	1002
7307.97		Fe II	73
7310.24		Fe II	73
7311.02		F I	5
7311.101		Fe I	1077
7311.26	P	Fe I	1105
7312.05	P	Fe I	1310
7315.73		Co I	89
7316.77	P	Fe I	267
7317.03		S II	18
7317.40	P	Fe I	1278
7318.39		Ti I	212
7320.694		Fe I	1188,1276
7320.70		Fe II	73
7323.20	P	Ti II	101
7323.38	P	Fe I	859
7324.89		Gd II	
7325.33	P	Fe I	980
7326.146		Ca I	44
7326.51		Mn I	50
7327.67		Ni I	140
7328.64		Hf II	65
7330	P	N V	12
7330.16	P	Fe I	1187
7330.54	P	Mn II	4
7330.97		Ti I	143
7331.95		F I	1
7332.26		Ti I	143
7332.97		Y II	25
7333.49		Ni I	263
7333.62		Fe I	1078
7334.66		Fe II	209
7336.03		Zr I	23
7337.61		S II	18
7337.78	P	Ti I	212
7338.92		V I	117
7340.78	P	Fe I	684
7341.78	P	Fe I	1307
7344.18	P	Fe I	266
7344.72		Ti I	97
7346.37		Ta I	12
7347.16	P	Fe I	266
7347.72	P	Mn II	4
7348.11		A II	60
7348.51	P	Fe I	1004
7350.55	P	Fe I	509
7351.160		Fe I	1273
7351.56		Fe I	1275
7352.16		Ti I	272
7353.52	P	Mn II	4
7353.528		Fe I	1251
7354.579		Co I	53
7355.46	P	Ti II	101
7355.94		Cr I	93
7356.51		V I	117
7356.81	P	Fe I	1187
7357.74		Ti I	97
7359.95	P	Fe I	1310
7361.39		V I	117
7361.56	P	Ti I	212
7361.59		Al I	11
7362.31		Al I	11
7363.16		V I	117

I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.
7363.96		Fe I	1274	7449.34		Fe II	73	7559.62		Fe I	292
7364.11		Ti I	97	7449.42		Al II	98	7559.68		Fe I	1308
7366.37		Fe I	1188	7450.32		Y II	25	7561.08		Hf II	80
7366.60		Ti I	96	7452.08	P	Fe I	1303	7563.03		Fe I	1251
7369.73	P	Mn II	4	7454.02		Fe I	1001	7565.53		Cl II	
7370.16		Fe I	1250	7455.47	P	Si I	75	7567.35		Ni I	291
7370.22		Eu II	8	7458.92		Ni I	291	7568.925		Fe I	1077
7373.02		Si I	58	7461.28	P	Fe I	1357	7573.41		F I	1
7373.07	P	Fe I	108	7461.534		Fe I	204	7573.53		Fe I	
7376.434		Fe I		7462.37		Cr I	93	7573.76	P	Fe I	957
7376.46		Fe II		7462.38		Fe II	73	7574.08		Ni I	156
7380.45		A II		7463.38	P	Fe I	1307	7578.07		Cl II	79
7381.94		Ni I	292	7466.44	P	Ti I	142	7578.96		S I	
7382.63	P	Fe I	266	7468.29		N I	3	7580.55		Ti I	211
7382.99		Fe I	1188	7468.41		Ca I		7582.15	P	Fe I	1274
7384.96	P	Fe I	1308	7471.36		O I	55	7583.796		Fe I	402
7385.24		Ni I	84	7471.41		Al II	21	7586.044		Fe I	1137
7385.54	P	Fe I	1251	7471.75	P	Fe I	267	7586.72		Co I	139
7385.97		Gd II	139	7473.23		O I	55	7588.30	P	Fe I	1306
7386.21		Ni I	286	7473.56		Fe I	1188	7588.48		Zn II	2
7386.394		Fe I	1275	7474.50	P	Fe I	957	7590.57		Co I	89
7387.10	P	Mn II	4	7474.60	P	Fe I	980	7592.74		He II	6
7387.70	P	Mg I	30	7474.94		Ti I	142	7605.32		Fe I	1308
7388.46		Y II	37	7476.40	P	Fe I	1251	7607.17		F I	4
7388.689		Co I	139	7476.45		O I	55	7610.24		Co I	126
7389.34	P	Fe I	1274	7476.92	P	Fe I	1004	7614.50		Ti I	211
7389.425		Fe I	1077	7477.21		O I	55	7617.00		Ni I	139
7392.18	P	Si I	75	7477.52	P	Fe I	957	7617.19	P	Fe I	1304
7392.411		Ba I	10	7478.77		Co I	53	7617.86		A II	73
7393.63		Ni I	109	7478.79		Zn II	1	7617.97	P	Fe I	1001
7394.90		Gd II	109	7478.87	P	Fe I	683	7619.21		Ni I	156
7396.50	P	Fe I	1278	7479.06		O I	55	7620.538		Fe I	1250
7398.68		F I	1	7479.70	P	Fe II	72	7624.48		Al II	91
7398.72		Co I	164	7480.66		O I	55	7624.75		Ni I	292
7398.78	P	Fe I	684	7481.49		Ni I	286	7627.85		Al II	91
7398.96		Hf II	110	7481.74	P	Fe I	266	7629.82		S I	
7398.98	P	Fe I	1306	7481.93	P	Fe I	1250	7634.50		Co I	183
7400.23		Cr I	93	7482.20	P	Fe I	1308	7635.1053		A I	1
7400.87	P	Fe I	204	7482.72		F I	1	7635.33		Al II	91
7401.13		Ni I	291	7483.48		La II	1	7639.99		O I	42
7401.17	P	Ni I	283	7484.28	P	Fe I	1306	7647.83	P	Fe I	1137
7401.689		Fe I	1004	7486.13	P	Fe I	980	7650.95	P	Fe I	266
7405.85		Si I	23	7488.083		Ba I	5	7653.783		Fe I	1250
7406.23		Co I	164	7488.73		Ni I	157	7654.44		Ti I	211
7406.23		Y II	25	7489.14		F I	5	7655.47		Fe II	73
7409.11		Si I	23	7489.61		Ti I	225	7657.30		Ni I	278
7409.17	P	Ni I	283	7491.678		Fe I	1077	7657.60		Mg I	22
7409.39		Ni I	139	7494.72	P	Fe I	33	7661.223		Fe I	1077
7411.178		Fe I	1077	7495.088		Fe I	1077	7661.46	P	Fe I	1309
7414.10		Cl I	4	7495.67	P	Fe I	1275	7663.09		Hf II	68
7414.51		Ni I	62	7496.12		Ti I	225	7663.45		O I	42
7415.19	P	Fe I	1308	7498.56		Fe I	1001	7664.15	P	Fe I	1250
7415.37		Si I	23	7501.25	P	Fe I	1002	7664.302		Fe I	402
7415.78	P	Mn II	4	7501.81		Ni I	282	7664.907		K I	1
7416.00		Si I	22	7503.8676		A I	8	7665.02		S II	70
7417.38		Co I	89	7505.35		Gd II	109	7665.48		O I	42
7418.32	P	Fe I	1002	7505.98	P	Fe I	1306	7672.092		Ba I	5
7418.674		Fe I	1001	7507.300		Fe I	1137	7672.44		Cl I	3
7419.35		Ni I	287	7508.53	P	Fe I	1274	7677.46		Mn I	54
7420.20	P	Fe I	1307	7509.03		S II	24	7679.60		S I	7
7421.60		Fe I	1188	7510.74		Au I	2	7680.22		Mn I	55
7422.30		Ni I	139	7511.045		Fe I	1077	7680.35		Si I	36
7423.17		Ti I	97	7512.12	P	Fe I	108	7686.13		S I	7
7423.54		Si I	23	7512.17	P	Fe I	1001	7687.779		Ag I	2
7423.63		N I	3	7514.93		F I	1	7689.10	P	Fe I	1304
7424.63		Si I	23	7515.88		Fe II	73	7689.36		A II	
7425.12	P	Fe II	209	7521.09		Ni I	282	7691.57	P	Mg I	29
7425.64		F I	1	7522.78		Ni I	126	7696.73		S I	7
7426.57		Eu II	8	7525.14		Ni I	139	7698.979		K I	1
7430.58		Fe I	204	7526.2		Al II	119	7699.49		Yb I	3
7430.73		Fe I	1351	7526.72	P	Fe I	1352	7706.52		Mn I	54
7430.90		Fe I	1189	7528.15	P	Fe I	1307	7706.77		O I	42
7431.17	P	Si I	89	7531.171		Fe I	1137	7709.78		Al II	113
7431.94	P	Fe I	1189	7533.42		Fe II	72	7709.98		Mn I	54
7431.98	P	Ti I	142	7534.83	P	Fe II	87	7710.390		Fe I	1077
7432.27	P	Mn II	4	7537.44	P	Fe I	1000	7711.71		Fe II	73
7433.48		Ni I	280	7537.97	P	Fe I	1352	7712.42		Mn I	55
7437.16		Co I	53	7540.44	P	Fe I	266	7712.661		Co I	126
7438	P	O V	17	7541.61		Fe I	957	7714.27		Ni I	62
7439.89		Zr I	23	7545.69		Ni I	287	7715.63		Ni I	109
7440.54		A II	60	7546.177		Fe I		7717.57		Cl I	4
7440.60		Ti I	225	7547.06		Cl I	5	7719.05	P	Fe I	1304
7440.98		Fe I	1273	7547.89	P	Fe I	1306	7720.68	P	Fe I	1304
7442.28		N I	3	7551.10	P	Fe I	1303	7722.60	P	Mg I	44
7443.031		Fe I	1002	7552.24		F I	1	7723.20		Fe I	108
7443.26	P	Fe I	1309	7552.52	P	Ni I	286	7723.7597		A I	1
7445.70	P	Fe I	107	7552.79	P	Fe I	1303	7724.2064		A I	6
7445.776		Fe I	1077	7553.970		Co I	183	7727.66		Ni I	156
7447.43		Fe I	1273	7554.73		Zr I	23	7732.50		Zn II	2
7448.00	P	Fe I	1352	7555.60		Ni I	187	7733.24		Mn I	54

I A	Type	Element	Multiplet No.
7733.50		Gd I	1
7733.68	P	Fe I	1306
7734.43		Mn I	55
7735.99		Ni I	281
7737.67	P	Fe I	1137
7742.7		Si I	
7742.71		Fe I	1306
7743.2		Si I	
7743.27		Co I	183
7744.94		CI I	5
7745.05		S II	70
7745.48	P	Fe I	1305
7746.56	P	Fe I	1309
7748.281		Fe I	402
7748.37		Gd II	142
7748.93		Ni I	156
7751.18		Fe I	1304
7754.70		F I	4
7755.15		Mn I	55
7757.89		Hf II	86
7764.72		Mn I	54
7788.72	P	Fe I	957
7771.74		Cr I	
7771.96		O I	1
7774.18		O I	1
7775.40		O I	1
7780.479		Ha I	5
7780.588		Fe I	1154
7788.95		Ni I	82
7797.62		Ni I	201
7798.90	P	Fe I	403
7800.0		Si I	81
7800.22		F I	4
7800.227		Rb I	1
7802.49	P	Fe I	1303
7807.97	P	Fe I	1303
7808.04		Fe I	
7809.24		Co I	79
7809.4		Na I	20
7810.81	P	Fe I	1303
7811.14	P	Mg I	43
7812.31		Al II	90
7813.62	P	Fe I	1305
7815.83		Al II	90
7816.16		He I	89
7820.80	P	Fe I	1118
7821.47		S II	31
7823.72		Al II	90
7828.81		Ni I	109
7832.224		Fe I	1154
7835.08		Sm II	69
7835.33		Al I	10
7838.15		Al I	10
7837.27		Sm II	64
7838.09	P	Fe II	87
7841.40	P	Fe II	72
7844.55	P	Fe I	1259
7844.87		Gd II	
7848.35		Gd II	
7848.47	P	Fe I	1323
7849.38		Zr I	40
7850		C I	32
7850.5		Si I	81
7852.74	P	Ti I	34
7855.12		Ni I	267
7855.41	P	Fe I	1305
7861.10		Ni I	156
7881.22		Hf II	66
7883.79		Ni I	268
7869.85		Fe I	1137
7869.868		Co I	189
7870.00		Zr I	41
7871.370		Co I	189
7877.13		Mg II	8
7878.22		Cl I	3
7879.75	P	Fe I	1308
7881.90		Y II	32
7885.00	P	Ti I	34
7885.26		S II	68
7886.31		O I	64
7890.22		Ni I	200,287
7895.50	P	Ti I	34
7898.37		Mg II	8
7898.38	P	Si I	69
7904.12	P	Fe I	403
7905.751		Ba I	10
7908.06		Gd II	120
7908.30		Cr I	318
7908.879		Co I	189
7909.34	P	Ti I	308

I A	Type	Element	Multiplet No.
7909.60	P	Fe I	1287
7910.50		Cr I	316
7911.338		Ba I	1
7912.55		Si I	68
7912.866		Fe I	12
7913.47		Si I	35
7917.48		Ni I	109
7917.85		Cr I	316
7918.38		Si I	57
7923.95		S I	22
7924.14	P	Fe I	1250
7924.62		Cl I	4
7926.37		Ti I	308
7928.14		Sm II	65
7928.84		S I	22
7930.25		Gd II	
7930.33		S I	22
7930.83	P	Mg I	42
7931.70		S I	22
7932.20		Si I	57
7933.130		Cu I	6
7937.166		Fe I	1136
7938.53	P	Ti I	151
7939.49		O I	35
7941.09		Fe I	623
7941.84	P	Fe I	508
7942.02		Cr I	300
7942.91		Mn I	
7943.15		O I	35
7943.1802		Ne I	18
7943.93		Ti I	308
7943.94		Si I	57
7944.65		Zr I	40
7945.878		Fe I	1154
7945.98	P	Fe I	107
7947.204		O I	35
7947.58		O I	35
7947.60		Rb I	1
7948.1754		A I	6
7949.17		Ti I	125
7950.83		O I	35
7952.18		O I	35
7953.11		Ni I	286
7954.94	P	Fe I	402
7955.81		Fe I	1305
7956.69		Zr I	41
7959.21		Fe I	1304
7961.58		Ti I	308
7963.25		Gd II	
7964.93	P	Fe I	1303
7965.52	P	Fe I	1305
7967.03	P	Fe I	1000
7987.43		S II	12
7970.26		Si I	57
7978.88		Ti I	151,308
7980.04	P	Fe I	1304
7980.58		Cl I	2
7981.97		O I	19
7982.41		O I	19
7983.68		Hf II	99
7987.00		O I	19
7987.34		O I	19
7987.38		Co I	89
7989.38		Cr I	300
7994.473		Fe I	
7995.00	P	Si I	21
7995.12		O I	19
7998.53		Ti I	308
7998.80		Co I	79
7997.80		Cl I	3
7997.85		S II	69
7998.972		Fe I	1136
8002.55	P	Fe I	1217
8005.24		S II	68
8008.1556		A I	3
8009.39	P	Si I	74
8014.7858		A I	1
8018.51	P	Fe I	1249
8018		C I	31
8018.04		Cr I	299
8018.70		S II	68
8024.50		Fe I	
8024.84		Ti I	151
8025.12		Sm II	83
8026.32		Sm II	67
8027.36		V I	30
8027.96	P	Fe I	823
8028.341		Fe I	1154
8032.03		Sm II	61
8034.56		Ni I	109

I A	Type	Element	Multiplet No.
8035.39		Si I	57
8043.308		Co I	193
8048.073		Fe I	1136
8046.78	P	Si I	73
8047.60		Fe I	12
8048.70		Sm II	87
8051.91		S II	31
8055.996		Co I	193
8058.14		Zr I	41
8081.27		Cr I	300
8063.10		Zr I	40
8065.99		Al I	16
8066.05	P	Ti I	151
8066.20		Y II	31
8088.24		Ti I	151
8068.48		Sm II	88
8070.12		Zr I	40
8070.64	P	Si I	87
8072.16	P	Fe I	108
8075.13		Fe I	12
8075.37		AI I	18
8080.55	P	Ti I	195
8080.668		Fe I	823
8082.4580		Ne I	6
8084.98		Cr I	299
8085.200		Fe I	1136
8085.29		S II	89
8088.18	P	Si I	87
8086.67		S II	31
8088.91		AI II	118
8089.88		S II	89
8089.96		Gd II	145
8092.634		Cu I	6
8093.25		S II	68
8093.32		Si I	34
8093.48		V I	30
8093.932		Co I	189
8095.93		Ni I	290
8096.874		Fe I	999
8098.50	P	Ti I	195
8098.72	P	Mg I	41
8103.8922		A I	3
8108.33	P	Fe I	265
8112.13		Co I	183
8112.17	P	Fe I	285
8114.93		S II	69
8115.3115		A I	1
8118.80		V I	30
8119.13		r I	299
8119.72		l II	110
8121.89		Al II	110
8122.08		Al II	110
8123.52		Al II	110
8126.52		Li I	3
8128.28		Cr I	300
8129.32	P	Fe I	285
8133.00		Zr I	40
8133.02		S II	68
8133.38	P	Ti I	195
8138.4060		Ne I	23
8144.58		V I	30
8145.47		Fe I	
8146.67	P	Fe I	623
8149.59		Fe I	1217,1218
8150.57	P	Si I	20
8151.95		Co I	193
8160.15		Al II	118
8161.06		V I	30
8163.22		Cr I	298
8166.66		Cr I	298,299
8187.94		Cr I	291
8189.80		Cr I	300
8171.30	P	Fe I	1322
8179.03		Fe I	1138
8179.31		S II	69
8179.43	P	Si I	33
8183.256		Na I	4
8184.80		N I	2
8185.69		Cr I	299
8186.73		V I	30
8188.80		Fe I	1272
8187.95		N I	2
8194.35		Cl I	2
8194.791		Na I	4
8194.824		Na I	4
8196.52	P	Fe I	1217
8198.87		V I	30
8198.951		Fe I	1154
8200.31		N I	2
8201.73		Zr I	40

FINDING LIST

I A	Type	Element	Multiplet No.
8203.2	P	Ca II	13
8203.572		H	14
8204.10	P	Fe I	12
8204.93	P	Fe I	12
8207.767		Fe I	1136
8208.57		Co I	193
8210.64		N I	2
8211.48		Si I	19
8212.00		Cl I	2
8212.43		Mn I	
8212.59		Zr I	40
8213.02	P	Mg I	28
8216.28		Cr I	299
8216.28		N I	2
8217.8	P	Mg II	7
8220.40		Cl I	3
8220.406		Fe I	1136
8221.63		S II	31
8221.73		Cl I	3
8221.84		O I	34
8222.15		S II	68
8223.07		N I	2
8223.16		S II	68
8224.09		Cr I	98
8225.15		S II	69
8225.67		Cr I	299
8227.64		O I	34
8230.01		O I	34
8230.67		Si I	19
8232.347		Fe I	1136
8232.99		O I	34
8233.30		S II	68
8235.31		O I	34
8235.89		Cr I	298
8236.13		Hf II	65
8236.77		He II	6
8238.29		Cr I	298
8238.4	P	Mg II	7
8239.130		Fe I	108
8241.61		V I	30
8242.34		N I	2
8248.151		Fe I	1136
8250.2	P	Ca II	13
8253.51		V I	30
8253.78	P	Fe I	1216
8254.10		Be I	2
8254.34	P	Fe I	508
8255.153		H	14
8255.90		V I	30
8256.1	P	Ca II	13
8257.859		H	14
8258.27		S II	31
8260.938		H	14
8261.95		Cr I	98
8263.86	P	Fe I	1272
8264.27		Fe I	1332
8264.288		H	14
8264.5209		A I	8
8266.076		Ne I	27
8267.941		H	13
8269.66	P	Fe I	1218
8271.934		H	13
8273.46		S II	31
8273.519		Ag I	2
8274.28		Fe I	1332
8275.91		Fe I	1270
8276.310		H	13
8281.125		H	13
8286.434		H	13
8287.38		Cr I	298
8290.62		Cr I	298
8292.309		H	12
8293.527		Fe I	623
8296.90		Cr I	57
8297.58		Cr I	297
8298.837		H	12
8300.01	P	Fe I	1331
8300.3258		Ne I	12
8303.11	P	Fe I	265
8303.19		Cr I	57
8305.62		As I	5
8305.79		Sm II	69
8305.94		Zr I	40
8306.115		H	12
8306.80		Si I	19
8307.41		Ti I	33
8307.61	P	Fe I	12
8310.98	P	Fe I	12
8314.262		H	12
8314.73		S II	12

I A	Type	Element	Multiplet No.
8316.38		Gd II	
8317.45		Si I	19
8322.06		Cr I	298
8323.428		H	12
8323.44		Cr I	298
8327.063		Fe I	60
8331.941		Fe I	1153
8333.29		Cl I	2
8333.785		H	11
8334.37		Ti I	33
8335.19		C I	10
8338.43		Si I	33
8338.83		Cr I	298
8339.431		Fe I	1153
8342.21	P	Fe I	401
8342.95		Fe I	1270
8345.20	P	Fe I	265
8345.553		H	11
8346.13	P	Mg I	40
8348.28		Cr I	56
8348.68		Sm II	64
8349.05	P	Fe I	12
8353.15		Ti I	33
8354.35		Al II	40
8355.16	P	Fe I	1050
8356.07	P	Fe I	1117
8358.53	P	Fe I	401
8359.006		H	11
8359.23		Al II	40
8359.57		Al II	40
8360.63		Cl II	5
8360.822		Fe I	1153
8361.77		He I	68
8361.95		S II	31
8363.30		Al II	40
8363.52		Al II	40
8363.58	P	Ti I	182
8364.24		Ti I	33
8365.642		Fe I	623
8369.87	P	Fe I	1271
8370.21		Zr I	40
8372.79		Co I	193
8374.478		H	11
8375.95		Cl I	2
8376.41		Ne I	12
8377.6068		Ne I	12
8377.79		S II	31
8377.90		Ti I	33
8379.44		Co I	193
8380.77		Mn I	
8382.23	P	Fe I	12
8382.54		Ti I	33
8382.82		Ti I	33
8386.24	P	Ti I	182
8387.781		Fe I	60
8389.42		Zr I	40
8389.48		Ti I	182
8392.400		H	11
8395.87		Mn I	53
8396.93		Ti I	33
8397.04		Cr I	57
8397.96	P	Si I	18
8401.42		Fe I	108
8401.68	P	Fe I	1136
8402.54		Ti I	224
8408.208		A I	8
8409.88		Mn I	53
8412.36		Ti I	33
8413.321		H	10
8414.00		Zr I	40
8414.08	P	Fe I	1154
8416.97		Ti I	224
8417.24		Ni I	156
8417.54		Ti I	182
8417.89	P	Si I	18
8418.4274		Ne I	18
8418.70		Ti I	
8420.968		O I	54
8422.39		S II	37
8422.95		Fe I	999
8423.10		Ti I	150
8424.14		Fe I	1272
8424.41		Ti I	182
8424.647		A I	3
8424.780		O I	54
8425.37		S II	62
8425.89	P	Fe I	12
8426.326		O I	54
8426.50		Ti I	33
8428.25		Cl I	2

I A	Type	Element	Multiplet No.
8428.342		O I	54
8428.94		As I	4
8429.128		O I	54
8429.36		Y II	
8431.20		Mn I	53
8434.51	P	Fe I	1270
8434.98		Ti I	33
8435.28	P	Si I	8
8435.68		Ti I	33
8437.958		H	10
8438.93		Ti I	224
8439.603		Fe I	1172
8442.58		Gd II	
8442.98		Ti I	210
8444.00		Si I	46
8444.48		Si I	46
8446.35		O I	4
8446.42	P	Fe I	1272
8446.56	P	Fe I	1267
8446.76		O I	4
8447.41	P	Fe I	1266
8447.63	P	Fe I	12
8449.54		S I	14
8450.26		Cr I	56
8450.89		Ti I	224
8451.55		S I	14
8452.14		S I	14
8455.24		Cr I	56
8457.10		Ti I	141
8459.01	P	Fe I	1270
8461.41	P	Fe I	814
8464.02	P	Fe I	1330
8464.65		Zr I	40
8465.23	P	Fe I	1270
8466.10	P	Fe I	1269
8466.54	P	Fe I	999
8467.15		Ti I	182
8467.256		H	10
8468.413		Fe I	60
8468.46		Ti I	150
8471.75		Fe I	1270
8480.63	P	Fe I	1272
8481.96	P	Fe I	999
8483.16		Ti I	150
8485.99		Sm II	66
8493.79	P	Fe I	1269
8494.42		Ti I	141
8495.3600		Ne I	18
8495.51		Ti I	210
8496.03		Ti I	209,313
8496.51	P	Fe I	1136
8497.00		Fe I	1172
8498.018		Ca II	2
8498.44		Zr I	40
8501.50		Si I	47
8501.81		Ni I	186
8502.38		Si I	46
8502.487		H	10
8503.17		Si I	
8509.63	P	Fe I	1136
8510.90		Sm II	64
8512.95	P	Fe I	462
8514.075		Fe I	60
8514.64	P	Si I	18
8515.08		Fe I	401
8515.48		S II	37
8518.05		Ti I	182
8518.37		Ti I	150
8519.05	P	Fe I	1267
8520.23		S II	34
8521.10		Cs I	1
8521.4407		A I	8
8522.64		S II	62
8525.04	P	Fe I	1215
8526.685		Fe I	1270
8527.32	P	Si I	18
8527.88	P	Fe I	1270
8531.36		Ti I	141
8533.38		Si I	80
8538.02	P	Fe I	1266
8539.36		Ti I	209
8541.65		As I	3
8542.089		Ca II	2
8543.72		Cr I	56
8545.384		H	10
8548.07		Ti I	150
8548.83		Cr I	56
8550.34	P	Si I	88
8550.46		Cl I	13
8550.54		Ti I	141

I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.
8555.54		Cr I	56	8680.77	P	Fe I	999	8819.42	P	Fe I	1266
8556.64		Si I	45	8681.920		Ne I	23	8819.48	P	Fe I	1269
8559.98		Fe I	1321	8682.99		Ti I	68	8820.45		O I	37
8562.13	P	Fe I	1153	8683.38		N I	1	8821.14		Ti I	139
8564.71		As I	3	8686.13		N I	1	8821.76		As I	3
8565.45		Ti I	141	8686.28		CI I	14	8824.227		Fe I	60
8567.74		N I	8	8686.77	P	Fe I	1269	8828.08	P	Fe I	1269
8567.78	P	Fe I	1269	8686.79	P	Fe I	956	8828.91		AI I	15
8569.72		Ti I	209	8688.633		Fe I	60	8834.04	P	Fe I	1050
8571.84	P	Fe I	1272	8689.71	P	Fe I	507	8835.67		Cr I	142
8575.25		CI I	2	8689.83	P	Fe I	1330	8835.85		Y II	30
8576.46	P	Si I	87	8692.34		Ti I	68	8838.433		Fe I	339
8576.50	P	Fe I	1215	8693.24		S I	6	8841.26		AI I	15
8578.40		Ti I	141	8693.98		S I	6	8846.82		Fe I	1267
8579.15		Si I	56	8694.70		S I	6	8848.25	P	Fe I	1153
8581.88		Hf II	66	8698.71	P	Fe I	400	8848.46	P	Fe I	1214
8582.267		Fe I	401	8699.13		Mn I	49	8852.30	P	Fe I	1318
8584.82	P	Fe I	1270	8699.43		Fe I	1267	8853.867		Ne I	27
8585.60		S I		8700.34	P	Fe I	1266	8858.39		AI II	115
8585.96		Cl I	2	8701.05		Mn I	49	8858.77		AI II	115
8586.20	P	Ni I	296	8702.49		Ni I	83	8862.59		Ni I	214
8589.78		Co I	193	8703.24		N I	1	8862.787		H	9
8591.2584		Ne I	30	8703.76		Mn I	49	8863.64		Fe I	1283
8592.10	P	Fe I	1269	8704.15		Ne I	23	8865.759		Ne I	8
8592.97		Fe I	1267	8707.42		Cr I	56	8866.961		Fe I	1172
8594.01		N I	8	8707.95		Cr I	296	8868.42		Fe I	400
8596.02	P	Si I	80	8710.29		Fe I	1267	8869.69		As I	4
8597.00		Si I	80	8710.82		Ba II	5	8874.53		S I	21
8598.18		Ti I	236	8711.69		N I	1	8876.13		Fe I	1267
8598.394		H	9	8713.19		Fe I	400,1267	8877.07		Ni I	285
8598.79		Fe I	1153	8718.70		Cr I	296	8878.26	P	Fe I	401
8600.98		Ti I	141,209	8718.82		N I	1	8878.76	P	Fe I	1050
8606.43		Si I	55	8719.56		Ti I	140	8880.70		S I	21
8606.45		Ni I	275	8725.76		Ti I	139	8882.47		S I	21
8607.08	P	Fe I	1272	8727.10	P	Fe I	999	8883.84		Si I	54
8610.62	P	Fe I	1153	8728.38		Si I	79	8884.23		S I	21
8611.807		Fe I	339	8728.88		N I	1	8887.10	P	Fe I	1265
8612.91		Ti I	141	8729.02		Si I	79	8892.13	P	Fe I	1302
8613.93	P	Fe I	1272	8729.12	P	Fe I	713	8892.97		Si I	54
8616.27	P	Fe I	1266	8732.17		Cr I	296	8896.00	P	Fe I	1153
8618.44		Ti I	209	8734.60		Mn I	49	8898.97		Si I	79,86
8621.612		Fe I	401	8734.70		Ti I	68	8899.50		Si I	79
8629.24		N I	8	8736.0	P	Mg I	39	8901.0		Mn I	56
8632.42	P	Fe I	1050	8737.32		Mn I	49	8902.94	P	Fe I	1266
8634.6480		Ne I	23	8737.74		Ba II	5	8905.99	P	Fe I	1302
8636.26		Cr I	56	8740.93		Mn I	49	8912.88		Al I	14
8637.04		Ni I	186	8742.60		Si I	44	8912.88		CI I	13
8640.70		Al II	4	8747.32		Fe I	401	8916.26		Fe I	32
8641.47		Ti I		8747.35		N I	1	8918.88		Se I	1
8643.03		Cr I	56	8750.13		Co I	203	8919.50		Ne I	27
8643.29	P	Fe I	1261	8750.475		H	9	8919.95		Fe I	1301
8647.05		Ne I	33	8751.18	P	Si I	44	8920.02	P	Fe I	1261
8648.89		Si I		8752.17		Si I	43	8922.66	P	Fe I	1298
8649.6		Na I	19	8757.192		Fe I	339	8923.56		AI I	14
8652.50	P	Fe I	1050	8761.44		Ti I	139	8923.8		Mg I	25
8654.16		As I	3	8764.000		Fe I	1172	8925.55		Si I	54
8654.3835		Ne I	33	8766.64		Ti I	68	8925.75		Cr I	142
8654.40	P	Fe I	623	8766.68		Si I	54	8926.06		Mn I	56
8654.51		Ne I	33	8767.65	P	Fe I	814	8929.04		Fe I	1301
8654.63		Mn I	59	8770.68		Ni I	82	8929.72		Mn I	56
8655.88		N I	8	8771.70		Ne I	38	8931.78	P	Fe I	507
8656.67	P	Fe I	1269	8772.88		AI I	9	8943.00		Fe I	338
8659.38		Mn I	59	8773.56		Cr I	296	8943.50		Cs I	1
8661.908		Fe I	60	8773.91		Al I	9	8943.6		Na I	26
8662.140		Ca II	2	8778.66		Ti I	140	8945.204		Fe I	1301
8663.73	P	Fe I	1270	8779.12	P	Fe I	1050	8946.25		Fe I	338
8665.021		H	9	8780.6223		Ne I	27	8947.20		Cr I	142
8667.37	P	Fe I	166	8783.755		Ne I	38	8948.01		CI I	1
8667.40	P	Si I	55	8784.44		Fe I	1270	8949.33		Si I	54
8667.9430		A I	6	8786.28	P	Cr I	142	8950.20	P	Fe I	1050
8670.19		S I	6	8786.96		Cr I	296	8954.65		Ni I	200
8670.65		S I	6	8790.62		Fe I	1267	8956.26	P	Fe I	1266
8670.92		Mn I	49	8790.88		Si I	79	8959.88	P	Fe I	1320
8671.06		Al II	112	8791.28		Si I	79	8965.94		Ni I	225
8671.28		Al II	112	8793.376		Fe I	1172	8967.53	P	Fe I	1286
8671.37		S I	6	8796		Na I	27	8968.20		Ni I	284
8671.86	P	Fe I	1272	8796.42		Fe I	1266	8975.408		Fe I	400
8672.06		Mn I	49	8798.05	P	Fe I	1286	8976.88		Cr I	142
8673.97		Mn I	49	8801.78	P	Fe I	956	8978.04	P	Fe I	1266
8674.751		Fe I	339	8804.624		Fe I	106	8978.17	P	Fe I	713
8674.92		Al II	112	8805.21	P	Fe I	1265	8979.34	P	Ti II	100
8675.28		Al II	112	8806.7032		Mg I	7	8982.35		Ni I	213
8675.38		Ti I	68	8806.7358		Mg I	7	8984.87		Fe I	1301
8679.00		8 I	6	8806.7678		Mg I	7	8988.58		Ne I	8
8679.491		Ne I	37	8808.17	P	Fe I	1267	8989.44		Ti I	138
8679.61	P	Fe I	1286	8809.47		Ni I	200	8994.57	P	Fe I	622
8679.70		S I	6	8814.50	P	Fe I	1330	8999.561		Fe I	339
8680.24		N I	1	8816.86	P	Fe I	1271	9002.00		Sc I	1
8680.31		AI II	112	8819.11		Co I	203	9006.72		Fe I	1261
8680.47		8 I	6	8819.39		Ti I	68	9008.37		Fe I	1329

I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.	I A	Type	Element	Multiplet No.
9009.04		Si I	91	9214.85	P	Fe II	71	9413.46		S I	18
9009.95		Cr I	187	9217.4	P	Mg II	1	9413.59		Si I	14
9010.55		Fe I	202	9217.54		Fe I	1298	9414.14		Fe I	1298
9012.098		Fe I	1301	9220.05		Ne I	33	9415.04	P	Fe I	1297
9013.90		Fe I	106	9221.59		Ne I	33	9415.5		Mg I	38
9014.911		H	9	9224.498		A I	8	9421.82		Si I	72
9015.16		Zr I	39	9225.55		Fe I	1213	9421.93		S I	18
9017.10		Cr I	187	9226.67		Ne I	30	9423.07	P	Fe I	1300
9019.84		Fe I	1301	9228.11		S I	1	9425.38		Ne I	36
9021.69		Cr I	187	9229.017		H	8	9429.58		Mn I	57
9024.47		Fe I	1265	9233.15	P	Fe I	1342	9430.08		Fe I	
9024.78	P	Fe I	1297	9237.49		S I	1	9433.29	P	Fe I	1292
9027.32		Ti I	138	9238.60		Si I	66	9437.11		S I	18
9027.90	P	Ti II	100	9242.32		Fe I	1262	9437.91		Fe I	1171
9028.9		N I	15	9243.29		Mn I	46	9443.98		Fe I	1298
9030.67		Fe I	338	9243.4	P	Mg II	1	9444.36		Cr I	29
9035.86		Cr I	142	9246.54		Fe I	203	9447.00		Cr I	29
9035.92		S I	13	9248.13	P	Fe I	1338	9452.06		Cl I	13
9036.32		S I	13	9248.80	P	Fe I	1285	9452.45		Fe I	1263,1292
9036.73		S I	13	9249.41		Al II	117	9454.24		Fe I	1298
9036.74	P	Fe I	1269	9252.67	P	Ti II	100	9459.21		Ne I	38
9038.65		Sc I	1	9253.72	P	Fe I	1261	9460.66	P	N I	7
9038.72		S I	13	9254.59		Si I		9462.97		Fe I	1263
9038.84	P	Fe I	400	9256.0		Mg I	27	9463.57		He I	67
9039.27		S I	13	9258.30		Fe I	1172	9466.0		Na I	24
9045.40		Cl I	13	9259.05		Fe I	1263	9476.57		Mn I	57
9052.56	P	Fe I	1342	9260.88		O I	8	9482.82	P	Fe I	1319
9059.74		Cr I	165	9262.73		O I	8	9485.93	P	Fe I	622
9060.6		N I	15	9263.97		Cr I	165	9486.680		Ne I	8
9061.31	P	Fe II	71	9265.99		O I	8	9486.89		Cl I	1
9061.48		C I	3	9267.29		As I	3	9487.49		O I	47
9062.24		Fe I	1301	9276.89		Zr I	39	9498.04		O I	47
9062.53		C I	3	9286.578		Al II	64	9499.39		O I	46
9063.40		He I	77	9286.794		Al II	64	9502.12		Mn I	58
9064.06		Si I	91	9288.145		Al II	64	9505.28		Si I	72
9070.42		Fe I	1076,1300	9288.550		Al II	64	9505.67		O I	46
9073.15		Cl I	12	9288.82		Cl I	11	9506.04		Ti I	312
9078.32		C I	3	9289.39	P	Fe I	1298	9508.49		Ti I	312
9079.599		Fe I	1172	9290.44		Cr I	29	9510.81		Ti I	312
9080.48		Fe I	1265,1298	9290.649		Al II	64	9511.55		Ti I	312
9084.20	P	Fe I	1076	9290.747		Al II	64	9511.80		Ti I	312
9084.29		Mn I	46	9294.17		Cr I	29	9513.24		Fe I	1298
9088.326		Fe I	339	9294.66		Fe I	1301	9516.51		He I	76
9088.57		C I	3	9297.14	P	Fe I	1247	9516.66		He I	76
9089.413		Fe I	400	9298.05	P	Fe I	1262	9520.06		Ni I	224
9090.70		Ti I	138	9300.62		As I	5	9522.01		O I	45
9094.89		C I	3	9300.85		Ne I	33	9525.78		P I	3
9100.50		Fe I	1264	9304.88		P I	3	9526.17		He I	82
9103.37		Si I	66	9307.94		Fe I	1297	9527.73	P	Fe I	1297
9103.64		Fe I	1076	9313.55		Cr I	80	9529.27		He I	86
9106.40		Ni I	289	9313.98		Ne I	33	9529.31		Fe I	
9111.85		C I	3	9318.13		Fe I	1263	9531.22	P	Fe I	1292
9112.25	P	Fe I	1297	9318.24		Si I	66	9534.17		Ne I	38
9112.95	P	Fe II	71	9324.07		Fe I	1300	9535.72		Mn I	57
9114.02		Mn I	46	9326.52		Ne I	36	9543.376		D	2
9116.89	P	Fe I	1265	9328.64	P	Fe I	1261	9545.974		H	8
9117.10		Fe I	338	9331.546		Al II	56	9546.07		Ti I	32
9118.888		Fe I	338	9331.979		Al II	56	9547.26		Zr I	39
9121.10		Cl I	1	9333.94		Fe I	1297	9547.40		Ne I	38
9122.9660		A I	1	9335.27	P	Fe I	1338	9550.90		Fe I	1263
9124.27		Al II	108	9336.47		Mn I	58	9556.56		Fe I	622
9140.15	P	Fe I	622	9343.40		Fe I	1300	9563.45		P I	2
9146.11		Fe I	202	9344.93		He II	6	9568.58		Cr I	29
9147.800		Fe I	1301	9346.69		La II	152	9569.960		Fe I	1296
9148.45		Cr I	165	9350.46		Fe I	1171	9570.08		Si I	42,65
9148.68		Ne I	30	9354.218		A I	8	9571.76		Cr I	29
9154.7		Na I	25	9359.420		Fe I	203	9573.65	P	Fe I	1297
9155.67	P	Fe I	1301	9362.06		Cr I	80	9574.25		Cr I	29
9156.02		O I	41	9362.370		Fe I	106	9582.28		V I	106
9156.23	P	Fe I	400	9370.57	P	Fe I	338	9584.77		Cl I	1
9157.07	P	Fe I	1268	9372.900		Fe I	202	9585.72		Si I	7
9157.08	P	Fe I	1261	9373.28		Ne I	33	9592.20		Cl I	11
9164.51		Fe I	1263	9375.14	P	Fe I	400	9593.54		P I	2
9172.09		Mn I	46	9382.93	P	Fe I	1284	9595.60		K I	10
9173.20	P	Fe I	203	9383.40	P	Fe I	1285	9597.76		K I	10
9173.63	P	Fe I	1300	9385.62		Ni I	225	9597.94		As I	3
9173.83		Fe I	622	9386.79		N I	7	9599.53		Ti I	32
9175.85		P I	3	9388.28		Fe I	1263	9602.07		Fe I	1283
9178.57		Fe I	1262	9392.77	P	Fe I	1262	9603.09		C I	2
9191.67		Cl I	1	9392.80		N I	7	9603.50		He I	71
9197.49		Cl I	14	9393.40		Si I	72	9608.56		Mn I	60
9199.52		Fe I	1298	9393.81		Cl I	1	9608.89	P	Fe I	1285
9201.76		Ne I	30	9394.71		Fe I	1264	9608.97		P I	2
9203.10	P	Fe I	1298	9396.57		Ni I		9611.60		V I	106
9208.29		Cr I	165	9401.09		Fe I	1297	9614.68		V I	106
9208.55		Si I	66	9403.36	P	Fe II	71	9620.86		C I	2
9210.030		Fe I	338	9404.80	P	Fe I	1264	9620.93	P	Fe I	737
9210.28		He I	83	9405.77		C I	9	9625.72		Ge I	7
9212.91		S I	1	9409.55	P	Fe I	1296	9625.80		He I	90
9214.45		Fe I	1264	9410.15	P	Fe I	1298	9626.30		Cr I	80

I A	Type	Element	Multiplet No.
9626.562		Fe I	1296
9632.37		Cl I	12
9633.0	P	Mg II	15
9633.02		Mn I	58
9633.78		S I	17
9634.22		Fe I	1296
9636.69		Fe I	1212
9637.55		Fe I	
9638.28		Ti I	32
9639.40	P	Ca I	55
9647.40		Ti I	32
9649.94		S I	17
9653.143		Fe I	1247
9657.00		La II	60
9657.30		Fe I	1296
9657.7841		A I	3
9658.49		C I	2
9658.94		Fe I	1292
9661.42		Ti I	194
9663.58	P	Ca I	55
9664.29	P	Ca I	55
9665.426		Ne I	8
9666.59		Fe I	
9667.20		Cr I	29
9668.9		V I	106
9670.48		Cr I	29
9672.34		S I	17
9673.16		Fe I	580
9675.55		Ti I	32
9676.25	P	Ca I	55
9676.42		Fe I	1345
9676.50		Mn I	60
9677.41		O I	58
9680.80		S I	17
9683.57		Fe I	1337
9684.9		Mn I	60
9686.3		Mn I	
9688.60	P	Ca I	55
9688.86		Ti I	32
9689.35		Ni I	295
9689.41		Si I	65
9690.62		Ti I	194
9691.58		V I	106
9693.68		S I	20
9693.69		Fe I	1292
9697.33		S I	17
9699.70		Fe I	1292,1299
9701.81	P	Ca I	55
9702.35		Cl I	1
9702.66		He I	75
9702.86		Ti I	248
9705.64		Ti I	32
9710.21	P	Ni I	285
9717.00		Ti I	248
9718.96		Ti I	124
9722.88		Te I	1
9728.36		Ti I	32
9730.32		Cr I	226
9734.52		Cr I	29
9734.74		P I	2
9738.50		V I	106
9738.60		Si I	
9738.624		Fe I	1296
9739.74		S I	20
9741.49		O I	57
9741.93		S I	20
9742.28		Hf II	66
9743.60		Ti I	32
9744.33		Cl I	10
9746.86		Ti I	248
9747.24		Fe I	1209
9750.73		P I	2
9752.84		Cr I	80
9753.129		Fe I	1247
9758.08		Si I	65
9760.65		O I	56
9763.450		Fe I	1296
9763.913		Fe I	1292
9764.40	P	Fe I	1348
9768.27		Si I	7
9770.10		Si I	
9770.28		Ti I	32
9771.06	P	Fe I	1211
9783.30		Ti I	32
9783.59		Ti I	32
9783.96		Fe I	1295
9784.5010		A I	8
9786.62		Fe I	1171
9787.67		Ti I	32
9789.24		Si I	65

I A	Type	Element	Multiplet No.
9790.08		P I	4
9796.79		P I	2
9800.335		Fe I	1296
9800.79	P	Fe I	1292
9811.36		Fe I	1285
9820.24	P	Fe I	106
9821.8		N I	19
9822.30		Zr I	39
9826.69		As I	3
9832.15		Ti I	149
9833.76		As I	2
9834.04		Fe I	1294
9839.38		Fe I	1211
9839.58		Si I	65
9856.7	P	Ca II	12
9861.793		Fe I	1296
9862.5		N I	19
9865.44		V I	76
9868.09		Fe I	1292,1299
9875.95		Cl I	11
9878.18	P	Fe I	1293
9879.41		Ti I	149
9881.51	P	Fe I	1209
9886.92		Si I	85
9889.082		Fe I	1296
9891.90		Si I	71
9898.90		Ni I	243
9900.87		Cr I	80
9903.74		P I	4
9913.16		Si I	65
9913.19	P	Fe I	1292
9917.93		Fe I	1317
9920.46	P	Fe I	1292
9923.03		As I	2
9924.35	P	Fe I	737
9927.35		Ti I	149
9932.26		S I	16
9933.3	P	Ca II	12
9937.10	P	Fe I	1210
9941.33		Ti I	193
9944.13		Fe I	1285
9948.98		Ti I	193
9949.06		Cr I	226
9949.84		S I	16
9950.5		K I	8
9950.70	P	Fe I	1209
9951.15	P	Fe I	1346
9953.45	P	Fe I	1346
9955.2		K I	8
9955.85	P	Fe I	1211
9958.90		S I	
9959.18	P	Fe I	998
9961.0		Na I	23
9967.32	P	Fe I	1293
9967.46		Si I	64
9970.26	P	Fe I	461
9976.65		P I	2
9977.52		Fe I	1293
9980.55		Fe I	1295
9981.16		Ti I	
9987.0		Mg I	36
9987.88	P	Fe I	59
9993.7		Mg I	36
9997.94		Ti I	149
10001.35	P	Si I	64
10003.02		Ti I	193
10011.72		Ti I	193
10012.15	P	Fe I	1336
10015.33		Si I	
10016.67	P	Fe I	1293
10019.77	P	Fe I	1348
10020.16		Si I	41
10022.34	P	Fe I	1345
10023.98		As I	2
10025.80	P	Si I	64
10026.10	P	Fe I	1211
10027.73		He I	81
10031.16		He I	85
10032.84	P	Fe I	1348
10034.45		Ti I	95
10036.658		Sr II	2
10046.64		D	2
10048.60		Ni I	242
10048.78		Ti I	95
10049.38		H	8
10051.55		Te I	1
10057.64		Fe I	1294
10057.69		Ti I	193
10058.28	P	Fe I	59
10059.87		Ti I	95

I A	Type	Element	Multiplet No.
10061.29		Ni I	284
10065.080		Fe I	1247
10066.47		Ti I	193
10067.84		Si I	64
10070.58	P	Fe I	1345
10072.10		He I	80
10076.29		Al II	6
10077.32		Al II	6
10077.53		Al II	6
10080.32		Cr I	226
10080.44	P	Fe I	1293
10081.40	P	Fe I	106
10084.22		P I	4
10084.42	P	Fe I	1209
10084.70		Zr I	39
10086.27	P	Fe I	399
10091.12		Te I	1
10091.64		Cl I	10
10107.19		Al II	6
10108.01		Al II	6
10108.37		Al II	6
10113.4		N I	18
10113.86		Fe I	264
10117.81	P	Fe I	1295
10119.20		Ti I	315
10120.90		Ti I	193
10122.50		Al II	6
10123.61		He II	2
10137.06	P	Fe I	1294
10138.50		He I	89
10142.82		Fe I	1294
10143.59	P	Fe I	979
10145.00	P	Fe I	621
10145.37		Ni I	243
10145.48		Ti I	
10145.601		Fe I	1247
10147.09		Ti I	315
10147.3		N I	18
10149.09	P	Fe I	1294
10153.13	P	Si I	40
10153.30	P	Fe I	1348
10155.18	P	Fe I	59
10155.88		Si I	64
10156.50	P	Fe I	1209
10164.5		N I	18
10167.4		Fe I	59
10170.60		Ti I	95
10179.92		Ti I	315
10189.26		Ti I	95
10191.51	P	Fe I	149
10193.25		Ni I	213
10193.66		V I	76
10195.11		Fe I	264
10197.05		Cr I	80
10203.45		V I	76
10204.72		P I	4
10216.351		Fe I	1247
10218.36		Fe I	461
10262.49	P	Si I	63
10265.23	P	Fe I	59
10283.87	P	Fe I	1346
10288.83		Si I	6
10295.05		Ni I	
10302.61		Ni I	242
10307.48	P	Fe I	1208
10307.60		Se I	2
10311.18		He I	74
10311.37		He I	74
10311.88	P	Fe I	106
10321.10		Ni I	289
10327.30		Se I	2
10327.314		Sr II	2
10330.23		Ni I	224
10332.33	P	Fe I	858
10333.24	P	Fe I	1208
10340.77		Fe I	59
10343.85		Ca I	43
10348.16		Fe I	1347
10353.85	P	Fe I	1346
10362.73	P	Fe I	1345
10364.13	P	Fe I	1347
10371.23		Si I	6
10378.62		Ni I	224
10379.01	P	Fe I	59
10386.45		Se I	2
10388.73	P	Fe I	1346
10392.45		Cl I	10
10395.75		Fe I	59
10396.85		Ti I	31
10401.72	P	Fe I	461

I A	Type	Element	Multiplet No.
10405.05		Ge I	7
10422.99		Fe I	264
10423.65		Fe I	461
10435.38	P	Fe I	1246
10452.70		Fe I	955
10455.47		S I	3
10456.79		S I	3
10459.46		S I	3
10460.07		Ti I	223
10469.59		Fe I	979
10470.051		A I	6
10486.24		Cr I	118
10496.14		Ti I	31
10506.5		N I	28
10509.96		Cr I	118
10511.45		P I	1
10529.45		P I	1
10530.53		Ni I	224
10532.21		Fe I	979
10539.0		N I	28
10548.0		C I	20
10548.0		N I	28
10553.02		Ti I	223
10555.63	P	Fe I	1345
10562.43		Ne I	40
10565.97		Ti I	223
10577.14	P	Fe I	579
10581.52		P I	1
10582.66		Si I	84
10584.66		Ti I	31
10585.12		Si I	6
10596.92		P I	1
10603.38		Si I	5
10607.78		Ti I	31
10616.75	P	Fe I	579
10627.81		Si I	32
10647.66		Cr I	118
10653.6		C I	8
10660.98		Si I	5
10661.61		Ti I	31
10667.53		Cr I	118
10667.60		He I	73
10672.17		Cr I	118
10673.55		A I	10
10677.04		Ti I	31
10681.43		P I	1
10683.18		C I	1
10685.44		C I	1
10689.52		Si I	53
10691.36		C I	1
10694.14		Si I	53
10707.44		C I	1
10725.19	P	Fe I	858
10726.33		Ti I	31
10727.21		Si I	53
10729.59		C I	1
10732.89		Ti I	31
10734.14		Ge I	6
10745.9		Na I	18
10748.7		Na I	18
10749.40		Si I	5
10752.99		Fe I	1352
10754.09	P	C I	1
10762.24		Ni I	242
10768.39	P	Al I	13
10774.92		Ti I	31
10780.71	P	Fe I	579
10782.12	P	AI I	13
10783.09		Fe I	461
10784.33		Si I	53
10786.78	P	Al I	13
10786.86		Si I	5
10792.59	P	Ti I	31
10793.65		Ti I	310
10796.52		Si I	78
10798.12		Ne I	22
10801.37		Cr I	118
10812.8		Mg I	37
10813.03		P I	1
10816.91		Cr I	118
10818.36		Fe I	979
10820.31		Ti I	310
10821.62		Cr I	118
10827.09		Si I	5
10828.04		Ti I	31
10829.081		He I	1
10830.250		He I	1
10830.341		He I	1
10833.12		Ca I	56
10834.4		Na I	22

I A	Type	Element	Multiplet No.
10838.77		Ca I	56
10844.02		Si I	31
10844.54		Ne I	26
10847.72		Ti I	31
10849.68		Fe I	1352
10861.51		Ca I	56
10863.60		Fe I	1246
10863.72		Ca I	56
10869.37		Ca I	56
10869.54		Si I	13
10872.47	P	Al I	12
10875.00	P	Fe I	1316
10879.78		Ca I	56
10881.65		Fe I	336
10882.66		Si I	53
10884.30		Fe I	979
10885.16		Si I	77
10890.13	P	Fe I	1341
10891.21	P	AI I	12
10891.25		Ni I	224
10893.72	P	Si I	78
10896.10		Ti I	310
10896.30		Fe I	461
10912.92		He I	79
10914.2	P	Mg II	3
10914.877		Sr II	2
10916.98		He I	84
10925.80		Fe I	1350
10929.90		Cr I	118
10935.11		D	2
10938.09		H	8
10947.51		Ge I	6
10949.4	P	Mg II	3
10957.19		Cr I	118
10961.2	P	Mg I	35
10966.1	P	Mg I	35
10979.27		Si I	5
10979.87		Ni I	242
10982.28		Si I	77
10984.24		Si I	77
10987.22	P	Fe I	337
10996.55		He I	78
11012.97		He I	70
11013.27		Fe I	1246
11015.63		Cr I	221
11018.00		Si I	39
11022.3		K I	9
11044.64		Cr I	118
11044.95		He I	88
11119.80		Fe I	337
11125.28		Ge I	6
11130.37		Si I	77
11149.34		Fe I	336
11157.03		Cr I	221
11187.74		Si I	76
11196.70	P	Ni I	81
11202.02		Si I	76
11225.83		He I	87
11227.5		N I	17
11230.91		Ti I	
11251.09		Fe I	337
11253.81	P	AI I	8
11255.69	P	Al I	8
11290.01		Si I	76
11294.0		N I	17
11294.97		O I	7
11297.54		O I	7
11298.83		Fe I	337
11302.22		O I	7
11308.45		Si I	76
11313.8		N I	17
11329.0		N I	17
11330.36		C I	19
11355.97		Fe I	858
11374.02		Fe I	58
11381.21		Na I	3
11381.53		Ti I	
11403.55		Na I	3
11403.89		Ti I	
11422.30		Fe I	58
11439.06		Fe I	337
11453		S I	19
11464		S I	19
11468.54		Si I	76
11472		S I	19
11479.87	P	Fe I	1315
11485.68		Si I	83
11502.94		Si I	90
11539.50		Ti I	
11542.96	P	Fe I	1341

I A	Type	Element	Multiplet No.
11564.8		N I	12
11588.73	P	Ni I	242
11591.98		Si I	90
11593.55		Fe I	58
11602.94	P	C I	25
11607.42		Si I	82
11607.57		Fe I	58
11609.41		Ti I	
11609.91	P	°C I	25
11611.49		Si I	90
11619.0		C I	25
11626.40		He II	6
11628.0		N I	12
11631.59	P	C I	25
11638.25		Fe I	58
11638.60	P	C I	25
11640.58		Si I	90
11656.0		C I	29
11656.0		N I	12
11667.1		C I	25,29
11676.99	P	C I	25
11689.76		K I	6
11689.98		Fe I	58
11747.5		C I	24
11754.0		C I	24
11769.41		K I	6
11772.66		K I	6
11783.28		Fe I	337
11801.8		C I	24
11828.8		Mg I	6
11836.4	P	Ca II	5
11849.3		C I	23
11863.0		C I	23
11880.4		C I	23
11882.80		Fe I	58
11884.12		Fe I	58
11890.44	P	Si I	12
11894.9		C I	23
11905.83		Cr I	221
11927.89	P	Ni I	242
11947.0	P	Ca II	5
11969.07		He I	72
11973.01		Fe I	58
11984.20		Si I	4
11991.57		Si I	4
11997.9		N I	37
12031.49		Si I	4
12074.1		N I	37
12083.79	P	Mg I	26
12103.46		Si I	4
12107.4		N I	37
12128.6		N I	27
12186.9		N I	27,34
12203.4		N I	27
12232.9		N I	27
12270.50		Si I	4
12288.0		N I	27,34
12327.7		N I	34
12395.97	P	Si I	4
12434.3		K I	5
12461.2		N I	36
12467.8		N I	36
12521.0		C I	28
12523.0		K I	5
12551.0		C I	30
12565.0		C I	30
12582.3		C I	30
12582.3		N I	36
12602.6		C I	30
12614.8		C I	30
12679.0		Na I	21
12814.56		D	2
12816.06	P	Ca I	52
12818.05		H	8
12823.89	P	Ca I	52
12827.09	P	Ca I	52
13123.37	P	Al I	4
13150.68	P	Al I	4
13164.1		C I	27

I A	Element	Multiplet No.	I A	Element	Multiplet No.	I A	Element	Multiplet No.
2972?	Ne V	2 F	3298.61	Cr II	5 F	3492.5	Co VII	3 F
2972.3	O I	2 F	3299.6	Ni VII	1 F	3493.55	Fe I	10 F
2990.4	Ni VII	1 F	3299.8	Co VI	1 F	3494.7	Fe VI	4 F
3000.6	Ni VII	3 F	3300.5	Fe III	6 F	3500.4	Mg VI	1 F
3005.1	A III	2 F	3301.6	Fe III	6 F	3501.62	Fe II	26 F
3008.4	Ti III	5 F	3307.0	Co VI	2 F	3503.0	Mg VI	1 F
3026.4	Ni VIII	4 F	3316.1	Fe III	7 F	3503.5	Fe V	4 F
3035.3	Ni VIII	3 F	3318.38	Fe II	27 F	3503.8	Ni VII	1 F
3038.3	Ni VII	1 F	3319.2	Fe III	6 F	3504.02	Fe II	26 F
3038.4	Ni VII	3 F	3319.3	Na IV	1 F	3504.51	Fe II	26 F
3042.44	Mn II	4 F	3322.54	Fe III	5 F	3505.81	Fe II	25 F
3042.61	Mn II	4 F	3326.9	Co VI	2 F	3509.78	Fe I	10 F
3044.52	Mn II	4 F	3329.3	Ca XII	1 F	3511.6	Fe VI	4 F
3048.8	Ni VII	3 F	3333.8	Fe III	6 F	3511.64	Fe I	10 F
3049.05	Mn II	4 F	3334.9	Fe III	6 F	3512.9	Co VI	1 F
3063.0	N II	2 F	3336.9	Co VI	2 F	3516.17	Fe I	10 F
3066.29	Cr II	8 F	3337.7	Ti III	4 F	3522.76	Fe I	10 F
3068.8	Al VII	1 F	3337.77	Cr II	5 F	3524.38	Fe II	26 F
3070.8	N II	2 F	3337.82	Mn II	3 F	3527.33	Fe I	10 F
3071.0	Co VII	4 F	3338.5	Co VII	3 F	3528.28	Fe II	25 F
3074.0	Al VII	1 F	3339.14	Fe II	27 F	3532.2	F IV	2 F
3074.11	Ni II	6 F	3340.7	Fe III	6 F	3536.25	Fe II	26 F
3075.6	Ni VIII	3 F	3341.38	Mn II	3 F	3538.69	Fe II	26 F
3081.6	Ni VII	3 F	3341.5	Co VI	1 F	3538.8	Co VI	1 F
3089.76	Cr II	8 F	3342.7	Cl III	2 F	3539.19	Fe II	26 F
3093.4	Al VII	1 F	3342.9	Ne III	2 F	3543.5	Fe VI	5 F
3098.6	Co VII	4 F	3344.72	Mn II	3 F	3558.1	Fe VI	4 F
3098.7	Al VII	1 F	3345.9 N	Ne V	1 F	3559.86	Ni II	5 F
3106.0	Ni VII	1 F	3353.4	Cl III	2 F	3569.0	Fe VI	5 F
3106.1	Ni VII	3 F	3355.5	Fe III	6 F	3575.6	Fe VI	4 F
3109.0	A III	2 F	3356.6	Fe III	6 F	3575.72	Fe II	25 F
3117.1	Ni VII	3 F	3361.7	Co VII	3 F	3579.81	Fe II	25 F
3118.3	Cl IV	2 F	3362.5	Fe V	4 F	3583.2	Cl II	2 F
3124.18	Fe II	12 F	3363.2	Ti III	4 F	3586.8	Co VI	1 F
3159.5	Co VII	4 F	3366.2	Fe III	6 F	3587.2	Fe VII	3 F
3162.21	Fe II	12 F	3367.3	Fe III	6 F	3590.8	Sc VI	2 F
3165.4	Ni VII	3 F	3367.5	Co VI	2 F	3593.3	Ti III	6 F
3168.2	Co VII	3 F	3368.9	Fe V	4 F	3601.3	Ni XVI	1 F
3170.55	Cr II	7 F	3371.4	Fe III	5 F	3608.5	Ti III	6 F
3175.38	Fe II	11 F	3374.6	Fe V	4 F	3615.5	Ti III	9 F
3181.05	Fe II	12 F	3376.20	Fe II	26 F	3616.00	Fe II	25 F
3185.01	Fe II	11 F	3378.4	Ti III	4 F	3622.9	Ti III	6 F
3188.79	Cr II	7 F	3378.55	Ni II	5 F	3627.35	Ni II	5 F
3189.1	Co VII	3 F	3379.7	Ni VII	1 F	3628.65	Fe II	25 F
3190.76	Fe II	12 F	3380.95	Fe II	27 F	3630.3	Fe VI	5 F
3191.2	Ni VII	1 F	3387.10	Fe II	26 F	3631.4	Mn VI	3 F
3191.3	Ni VII	3 F	3387.7	Fe XIII	2 F	3631.8	Ti III	6 F
3202.25	Cr II	6 F	3388.2	Co VI	2 F	3638.4	Ti III	6 F
3203.3	Cl IV	2 F	3396.7	Ni VII	2 F	3640.6	Ti III	6 F
3207.46	Cr II	6 F	3398.5	Co VI	2 F	3643.3	Ni XIII	2 F
3207.6	Ti III	7 F	3400.3	Fe V	4 F	3645.7	Fe VI	4 F
3209.3	Co VII	4 F	3402.50	Fe II	27 F	3646.3	Ca VI	1 F
3209.94	Fe II	12 F	3403.3	Co VI	1 F	3656.3	Ti III	6 F
3212.75	Cr II	6 F	3403.65	Fe I	10 F	3658.1	Co VI	1 F
3214.5	Ni VII	1 F	3405.39	Fe I	10 F	3659.96	Fe II	10 F
3214.5	Ti III	7 F	3406.2	Fe III	5 F	3661.3	Ti III	11 F
3214.67	Fe II	11 F	3406.6	Fe V	4 F	3664.1	Fe VI	4 F
3216.32	Cr II	6 F	3413.3	Ni VII	2 F	3670.62	Fe II	10 F
3224.54	Fe II	11 F	3425.8 N	Ne V	1 F	3672.37	Cr I	4 F
3226.7	Ti III	7 F	3428.24	Fe II	27 F	3675.0	Cl II	2 F
3226.99	Fe II	11 F	3428.8	Fe III	5 F	3675.2	Fe VI	5 F
3228.2	Ni VIII	3 F	3430.3	Fe V	4 F	3678.71	Cr I	4 F
3230.17	Fe II	12 F	3439.29	Ni II	5 F	3680.3	Ni IX	2 F
3236.7	Fe III	7 F	3440.3	Ni VII	1 F	3686	V VIII	1 F
3239.07	Cr II	5 F	3440.99	Fe II	26 F	3688?	Ca VII	2 F
3239.7	Fe III	6 F	3444.1	Co VI	2 F	3695.0	Ni VIII	2 F
3239.8	Co VII	3 F	3445.4	Fe V	4 F	3702.7	Ca VI	1 F
3243.2	Ni VII	1 F	3445.9	Na IV	1 F	3705.8	Ni VIII	2 F
3244.18	Fe II	11 F	3450.39	Fe II	27 F	3708.3	Co VI	1 F
3254.24	Fe II	11 F	3452.30	Fe II	26 F	3709.14	Fe II	10 F
3254.7	Fe III	6 F	3452.54	Fe I	10 F	3712.26	Fe II	10 F
3256.31	Fe II	11 F	3454.34	Fe I	10 F	3721.1	S III	2 F
3256.73	Fe II	11 F	3455.11	Fe II	26 F	3726.16 N	O II	1 F
3261.7	Co VII	3 F	3457.3	Fe VII	3 F	3728.91 N	O II	1 F
3263.1	Ti VII	2 F	3458.73	Fe I	10 F	3733.6	Mn VI	3 F
3264.84	Fe II	11 F	3460.20	Fe II	25 F	3735.2	Fe V	3 F
3272.9	Co VI	2 F	3461.42	Fe II	27 F	3736.17	Fe II	10 F
3273.5	Cr IX	1 F	3463.4	Fe V	4 F	3740.2	Fe VI	5 F
3274.7	Co VII	4 F	3465.7	Co VI	2 F	3744.1	Fe V	3 F
3275.02	Fe II	11 F	3466.4	N I	2 F	3751.66	Fe II	10 F
3277.12	Fe II	11 F	3470.0	Ni IX	2 F	3754.98	Fe I	9 F
3277.3	Co VI	1 F	3476.5	Co VI	2 F	3755.5	Fe V	3 F
3277.55	Fe II	11 F	3481.5	Co VI	1 F	3759.9	Fe VII	3 F
3283.1	Fe III	7 F	3484.01	Fe II	27 F	3761.0	Co VI	1 F
3285.6	Co VI	2 F	3485.5	Mg VI	1 F	3764.8	Fe V	3 F
3286.2	Fe III	6 F	3486.6	Ni VII	2 F	3774.9	Fe VI	3 F
3287.35	Fe II	11 F	3487.23	Fe I	10 F	3776.1	Fe VI	4 F
3289.46	Fe II	11 F	3488.1	Mg VI	1 F	3777.4	Fe V	1 F
3289.89	Fe II	11 F	3489.07	Fe I	10 F	3782.9	Fe V	3 F
3295.4	Co VI	2 F	3489.98	Fe II	26 F	3794.6	Fe V	3 F

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I A		Element	Multiplet No.
3796.7		S III	2 F
3798.2		Fe V	1 F
3806.34		Cu II	2 F
3810.6		Ni IX	2 F
3812.07		Fe I	9 F
3814.58		Fe I	9 F
3815.1		Fe VI	3 F
3820.2		Fe V	3 F
3834.73		Fe II	9 F
3836.89		Fe II	8 F
3838.1		Fe V	1 F
3838.9		Fe V	3 F
3846.46		Fe I	9 F
3847.78		Fe II	8 F
3849.1		Fe VI	3 F
3850.3		Ni VIII	2 F
3850.8		Fe V	3 F
3851.63		Fe II	9 F
3856.98		Fe I	9 F
3862.3		Ni VIII	2 F
3866.9		Mn VI	3 F
3868.74	N	Ne III	1 F
3873.51		Fe I	9 F
3874.07		Fe II	8 F
3882.73		Fe II	24 F
3884.57		Fe I	9 F
3889.58		Fe I	9 F
3890.9		Fe VI	3 F
3891.8		Fe V	3 F
3894.40		Fe II	8 F
3895.7		Fe V	1 F
3898.19		Fe I	9 F
3905.62		Fe II	8 F
3911.1		Fe V	3 F
3914.83		Sc III	1 F
3917.23		Fe I	9 F
3917.64		Fe I	9 F
3923.5		Fe V	3 F
3929.35		Fe II	24 F
3931.44		Fe II	8 F
3931.50		Fe I	9 F
3932.72		Fe II	8 F
3937.80		Fe II	8 F
3945.34		Sc III	1 F
3945.70		Fe I	9 F
3946.0		Co VIII	2 F
3949.27		Fe II	8 F
3967.51	N	Ne III	1 F
3968.23		Ti II	11 F
3968.27		Fe II	8 F
3968.66		Fe II	24 F
3970.1		Fe V	1 F
3976.2		Fe III	4 F
3976.97		Fe II	8 F
3979.78		Fe II	9 F
3979.93		Fe II	8 F
3983.08		Ti II	11 F
3986.1		Fe XI	2 F
3986.38		Fe II	8 F
3991.47		Cr II	4 F
3991.84		Fe II	8 F
3992.08		Cr II	4 F
3993.29		Cr II	4 F
3993.57		Cr II	4 F
3993.65		Ni II	4 F
3995.8		Fe VI	3 F
3996.3		Ca V	2 F
3996.3		F IV	1 F
4003.2		Fe V	1 F
4004.07		Ti II	11 F
4005.07		Ti II	11 F
4008.3		Fe III	4 F
4010.91		Fe II	9 F
4011.2		Na V	1 F
4015.3		Na V	1 F
4017.38		Fe II	24 F
4017.5		Na V	1 F
4020.20		Ti II	11 F
4021.6		Na V	1 F
4025.80		Ni II	4 F
4026.6		Fe V	1 F
4029.41		Fe II	9 F
4031.15		Ti II	11 F
4032.3		Ni VIII	2 F
4033.56		Ni II	4 F
4033.98		Fe II	24 F
4041.57		Ti II	11 F
4043.4		Ni IX	1 F
4046.4		Fe III	4 F
4052.5		Ni VIII	1 F

I A		Element	Multiplet No.
4055.5		Mn V	4 F
4059.3		F IV	1 F
4062.2		Mn V	4 F
4065.7		Ni IX	2 F
4068.62	N	S II	1 F
4070.7		Fe III	4 F
4071.5		Fe V	1 F
4076.22	N	S II	1 F
4077.5		Fe V	2 F
4079.7		Fe III	4 F
4080.00		Fe II	24 F
4083.78		Fe II	23 F
4084.32		Fe II	24 F
4086.5		Ca XIII	1 F
4093.0		Fe V	2 F
4096.6		Fe III	4 F
4097?		K VI	2 F
4099.29		Fe I	8 F
4103.1		Co VII	2 F
4104.59		Fe I	8 F
4106.1		Ni VIII	2 F
4107.51		Fe I	7 F
4108.02		Fe I	8 F
4112.7		Ni IX	2 F
4113.42		Cr I	3 F
4113.7		Mn V	4 F
4114.10		Cr I	3 F
4114.48		Fe II	23 F
4116.36		Cr I	3 F
4116.60		Ti II	20 F
4117.09		Cr I	3 F
4120.7		Mn V	4 F
4122.6		Mn X	2 F
4123.9		Fe V	2 F
4125?		K V	1 F
4129.4		Fe III	4 F
4129.49		Ti II	20 F
4130.47		Fe I	8 F
4130.7		Fe III	4 F
4131.51		Fe II	24 F
4134.01		Fe II	21 F
4136.4		Fe V	1 F
4139.5		Co VII	2 F
4140.4?		Ti III	8 F
4142.5		Fe V	2 F
4143.17		Ni II	10 F
4144.3		Fe III	4 F
4144.8		Ti VII	1 F
4144.97		Fe I	7 F
4146.65		Fe II	21 F
4147.21		Ti II	20 F
4147.30		Ni II	10 F
4149.52		Cr I	2 F
4153.72		Fe I	8 F
4156.25		Ti II	20 F
4157.5		F II	2 F
4157.89		Fe II	37 F
4160.9		Ti III	10 F
4163.6?		Ti III	8 F
4165.79		Cu II	1 F
4166?		K V	1 F
4169.40		Ti II	20 F
4169.41		Ti II	20 F
4175.2		Fe V	2 F
4177.21		Fe II	21 F
4178.93		Fe I	7 F
4178.95		Fe II	23 F
4179.45		Fe I	8 F
4181.3		Fe V	1 F
4185.74		Fe I	8 F
4187.46		Ti II	20 F
4190.53		Fe II	37 F
4190.6		Ni IX	2 F
4196.3		Mn V	4 F
4197.81		Fe II	22 F
4198.0		Co VIII	2 F
4200.6		Ti III	10 F
4201.56		Fe I	8 F
4201.74		Ni II	3 F
4203.39		Fe I	7 F
4203.5		Mn V	4 F
4204.9		Co VIII	2 F
4216.4		Ni VIII	1 F
4217.71		Fe I	7 F
4225.9		Ni VIII	1 F
4226.8		Fe V	2 F
4229.8		Fe V	1 F
4229.86		Fe I	7 F
4230.40		Fe I	8 F
4231.4		Ni XII	1 F

I A		Element	Multiplet No.
4231.56		Fe II	21 F
4234.81		Fe II	37 F
4243.98		Fe II	21 F
4244.81		Fe II	21 F
4249.07		Fe II	36 F
4249.48		Ni II	4 F
4251.99		Cr I	2 F
4262.7		Co VII	2 F
4263?		Ti VIII	1 F
4263.07		Fe I	7 F
4263.62		Fe I	8 F
4266.34		Fe II	36 F
4268.67		Fe II	37 F
4269.60		Fe I	7 F
4270.62		Fe II	36 F
4274.87		Mn II	6 F
4275.21		Mn II	6 F
4276.83		Fe II	21 F
4278.21		Fe I	7 F
4278.97		Mn II	6 F
4280.04		Fe I	8 F
4285.90		Ni II	4 F
4287.40		Fe II	7 F
4294.70		Ni II	4 F
4297.8		Ni VIII	1 F
4298.8		Ni VIII	2 F
4302.3		Cr V	3 F
4305.90		Fe II	21 F
4308.4		Mn V	4 F
4310.46		Ni II	10 F
4314.92		Ni II	10 F
4319.62		Fe II	21 F
4321.92		Fe II	37 F
4326.85		Ni II	3 F
4329.43		Fe II	36 F
4331.7		Ni IX	1 F
4331.9		Mn V	3 F
4346.85		Fe II	21 F
4347.35		Fe II	36 F
4351.05		Fe II	36 F
4351.80		Fe II	36 F
4352.78		Fe II	21 F
4356.14		Fe II	22 F
4358.10		Fe II	6 F
4358.37		Fe II	21 F
4359?		A XIV	1 F
4359.34		Fe II	7 F
4363.21	N	O III	2 F
4365.2		Mn V	3 F
4372.43		Fe II	21 F
4375.71		Cu II	1 F
4377.37		Fe I	6 F
4382.75		Fe II	6 F
4384.21		Fe II	36 F
4387.4		Mn IV	2 F
4391.1		Mn IV	2 F
4396.9		Cr V	3 F
4398.4		Mn V	3 F
4402.60		Fe II	36 F
4404.4		Ni VIII	1 F
4405.2		Mn IV	2 F
4406.39		Fe II	36 F
4407.16		Fe II	36 F
4407.9		Cr IX	1 F
4408.5		Mn IV	2 F
4409.86		Fe II	22 F
4413.78		Fe II	7 F
4414.45		Fe II	6 F
4416.27		Fe II	6 F
4422.4		Co VIII	2 F
4427.7		Mn IV	2 F
4430.79		Ti I	25 F
4432.45		Fe II	6 F
4432.8		Mn V	3 F
4435.08		Fe II	36 F
4435.1		Co VII	2 F
4437.10		Fe I	6 F
4438.92		Fe II	36 F
4439.73		Fe II	36 F
4442.0		Mn IV	2 F
4446.2		Ni VIII	1 F
4452.11		Fe II	7 F
4454.37		Fe I	21 F
4457.95		Fe II	6 F
4458.57		Fe I	6 F
4461.0		Co VIII	1 F
4461.0		Mn IV	2 F
4461.54		Ni II	10 F
4466.33		Ni II	10 F
4468?		Ti VIII	1 F

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I A	Element	Multiplet No.
4470.29	Fe II	6 F
4472.37	Ti I	19 F
4473.46	Fe I	6 F
4474.91	Fe II	7 F
4475.0	Co VII	2 F
4477.91	Ti I	19 F
4478.8	Mn IV	1 F
4480.6	Mn IV	2 F
4484.84	Ti I	19 F
4485.87	Ni II	3 F
4486.35	Ti I	19 F
4488.75	Fe II	6 F
4488.76	Ti I	19 F
4492.3	Co VIII	2 F
4492.64	Fe II	6 F
4493.23	Fe I	5 F
4493.3	Ni VIII	1 F
4494.57	Fe I	6 F
4495.3	Mn IV	2 F
4496.21	Ti I	19 F
4497.23	Ti I	19 F
4497.4	Mn IV	1 F
4498.90	Ti I	19 F
4500.00	Ti I	19 F
4501.36	Ti I	19 F
4504.71	Ti I	19 F
4505.9	Co VII	1 F
4506.9	S I	2 F
4508.52	Ti I	19 F
4509.61	Fe II	6 F
4509.85	Ti I	19 F
4510.63	Fe I	6 F
4511.0	K IV	2 F
4514.90	Fe II	6 F
4515.52	Ti I	19 F
4516.60	Fe I	6 F
4517.36	Ti I	19 F
4521.76	Ti I	19 F
4523.16	Ni I	3 F
4523.6	Cr V	3 F
4526.55	Ti I	19 F
4528.3	Mn IV	2 F
4528.39	Fe II	6 F
4528.7	Mn V	3 F
4532.09	Fe I	6 F
4533.00	Fe II	6 F
4535.7	Mn IV	1 F
4536.05	Ti I	19 F
4544.36	Fe I	5 F
4545?	Ti VIII	1 F
4545.20	Fe I	21 F
4548.3	Be I	1 F
4548.32	Fe I	21 F
4548.5	Mn IV	2 F
4550.48	Fe II	6 F
4550.64	Fe I	6 F
4551.98	Fe II	6 F
4554.49	Fe I	6 F
4555.01	Fe II	6 F
4563.7	Mn IV	2 F
4564.7	Co VIII	2 F
4573.23	Fe I	6 F
4573.45	Ni II	10 F
4573.9	Fe III	3 F
4573.93	Cr I	1 F
4575.46	Ca I	2 F
4575.84	Cr I	1 F
4577.32	Cr I	1 F
4578.83	Fe I	5 F
4580.80	Cr II	3 F
4580.88	Cr II	3 F
4581.18	Cr II	3 F
4589.0	S I	2 F
4591.4	Mn IV	1 F
4598.07	Fe II	4 F
4603.66	Fe I	5 F
4604.48	Fe II	5 F
4607.0	Fe III	3 F
4610?	A V	2 F
4618.97	Fe I	21 F
4621.5	C I	2 F
4622.19	Fe I	21 F
4627.3	C I	2 F
4630.06	Fe I	21 F
4631.93	Fe I	5 F
4632.27	Fe II	5 F
4639.68	Fe II	4 F
4640.05	Fe I	5 F
4644.2	Ni VIII	1 F
4652.2	Co VII	1 F
4658.1	Fe III	3 F
4662.7	Mn IV	1 F
4664.45	Fe II	4 F
4664.97	Fe II	5 F
4665.5	Co VII	2 F
4665.65	Fe II	4 F
4667.0	Fe III	3 F
4669.5	P II	2 F
4672.2	Sc VI	1 F
4674.64	Fe I	21 F
4677.94	Fe I	21 F
4680.05	Fe I	5 F
4685.99	Fe I	21 F
4687.56	Fe II	5 F
4692.6	Co VII	1 F
4693.56	Fe I	5 F
4694.59	Fe I	5 F
4699.0	Fe VII	2 F
4699.3	Mn IV	1 F
4701.5	Fe III	3 F
4711.4	A IV	1 F
4711.86	Fe I	21 F
4714?	Ne IV	1 F
4715.21	Fe I	21 F
4716?	Ne IV	1 F
4716.36	Fe II	5 F
4717?	Ne IV	1 F
4719.7	Mn IV	1 F
4720?	Ne IV	1 F
4723.39	Fe I	21 F
4728.07	Fe II	4 F
4733.9	Fe III	3 F
4734	V VIII	1 F
4736.6	P II	2 F
4738.9	Co VII	1 F
4740.3	A IV	1 F
4745.49	Fe II	20 F
4750.57	Fe II	5 F
4751.75	Fe I	4 F
4754.7	Fe III	3 F
4761.9	Mn IV	1 F
4769.4	Fe III	3 F
4771.54	Ti II	10 F
4772.07	Fe II	4 F
4772.4	Ni VIII	1 F
4774.74	Fe II	20 F
4777.7	Fe III	3 F
4779?	Ti VIII	1 F
4785.21	Ti II	10 F
4785.9	Co VIII	1 F
4789.19	Fe I	4 F
4789.5	F II	1 F
4793.03	Ti II	10 F
4798.28	Fe II	4 F
4799.31	Fe II	4 F
4799.4	Cr IV	5 F
4799.5	Fe III	3 F
4806.83	Ti II	10 F
4807.5	Fe VI	2 F
4813.27	Ni I	3 F
4813.9	Fe III	3 F
4814.0	Cr IV	5 F
4814.55	Fe II	20 F
4823.3	Mn IV	1 F
4823.44	Ti II	10 F
4824?	Sc VII	1 F
4824.1	Fe III	3 F
4835.4	Cr III	3 F
4837.42	Ti II	10 F
4838.7	Cr IV	4 F
4842.4	Cr III	3 F
4843.1	Cr IV	4 F
4843.34	Fe I	4 F
4843.51	Fe II	3 F
4847.01	Ti I	13 F
4847.58	Fe I	4 F
4850.9	Fe VI	2 F
4851.6	Co VII	1 F
4852.73	Fe II	20 F
4857.50	V II	8 F
4858.4	Co VII	1 F
4859.87	Cr II	15 F
4861.41	Ti II	23 F
4862.80	Ti II	10 F
4863.9	Mn IV	1 F
4869.3	F II	1 F
4870.8	Cr III	3 F
4871.43	V II	8 F
4872.80	V II	8 F
4873.4	Cr IV	5 F
4874.21	V II	8 F
4874.49	Fe II	20 F
4876.0	Cr III	3 F
4877.01	Ti II	10 F
4880.00	V II	8 F
4881.0	Fe III	2 F
4881.87	Mn II	5 F
4883.9	Fe III	1 F
4886.56	Fe I	4 F
4887.27	Cr II	15 F
4889.49	Mn II	5 F
4889.63	Fe II	4 F
4889.70	Fe II	3 F
4893.9	Fe VII	2 F
4894.1	Cr III	3 F
4894.8	Cr IV	4 F
4896.65	Mn II	5 F
4896.87	V II	8 F
4897.21	V II	8 F
4898.49	Ti I	13 F
4898.64	V II	8 F
4899.4	Cr IV	4 F
4901.1	Co VII	1 F
4905.35	Fe II	20 F
4907.6	Cr IV	5 F
4908.8	Mn IV	1 F
4911.9	Cr III	3 F
4912.82	Ca I	1 F
4916.18	Ca I	1 F
4916.26	Fe I	4 F
4916.81	Ti II	23 F
4917.22	Fe II	3 F
4923.05	V II	7 F
4924.5	Fe III	2 F
4924.81	Cr II	15 F
4925.84	Ti II	23 F
4928.68	V II	8 F
4928.9	Cr III	3 F
4930.5	Fe III	1 F
4931.8	O III	1 F
4936.4	Fe III	1 F
4938.6	Ca VII	1 F
4940.22	V II	7 F
4942.3	Fe VII	2 F
4942.95	Fe I	4 F
4946.76	Ti I	12 F
4947.17	Cr II	15 F
4947.38	Fe II	20 F
4950.74	Fe II	20 F
4956.35	Fe I	4 F
4958.23	Fe II	4 F
4958.91 N	O III	1 F
4961.18	Fe I	4 F
4965.31	V II	7 F
4965.6	Cr III	3 F
4965.78	Fe II	3 F
4968.65	V II	7 F
4968.8	Fe VI	2 F
4969.3	Cr IV	5 F
4971.8	Cr IV	4 F
4973.39	Fe II	20 F
4974.0	Fe VI	2 F
4976.33	V II	7 F
4976.5	Cr IV	4 F
4982.73	Ti II	23 F
4982.92	Ti I	11 F
4983.42	Fe I	4 F
4985.27	V II	7 F
4985.64	Cr II	15 F
4985.9	Fe III	2 F
4987?	Sc VII	1 F
4987.2	Fe III	2 F
4987.68	Ti II	19 F
4988.75	Ti I	12 F
4989.4	Fe VII	2 F
4992.68	Cr II	2 F
5002.01	Fe I	4 F
5002.63	Ti II	19 F
5002.88	V II	7 F
5005.52	Fe II	20 F
5006.63	Ti II	19 F
5006.65	Fe II	4 F
5006.84 N	O III	1 F
5011.3	Fe III	1 F
5014.37	Fe I	4 F
5020.24	Fe II	20 F
5021.69	Ti II	19 F
5025.53	Ti I	11 F
5027.34	Ni I	3 F
5032.69	Ti II	19 F

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I A		Element	Multiplet No.
5032.7		Fe III	2 F
5034.05		Cr II	15 F
5035.50		Fe II	4 F
5036.55		Fe II	3 F
5039.10		Fe II	19 F
5043.30		Ti I	12 F
5043.53		Fe II	20 F
5045?		Sc VII	1 F
5047.91		Ti II	19 F
5049.29		Fe II	20 F
5049.73		Cr II	2 F
5056.5		Ni IX	1 F
5060.3		Fe III	1 F
5063.7		Fe III	2 F
5065.43		Ti II	19 F
5071.6		Cr IV	4 F
5072.40		Fe II	19 F
5074.90		Fe I	19 F
5076.3		Co VII	1 F
5076.57		Fe II	20 F
5080.84		Ti II	19 F
5082.54		Cr I	16 F
5083.72		Fe II	35 F
5084.8		Fe III	1 F
5086.52		Fe II	3 F
5092.60		Cr II	2 F
5092.97		Cr I	8 F
5098.44		Cr I	16 F
5100.4		Fe VI	1 F
5104.5		Ti VII	1 F
5105.16		Cr I	8 F
5107.95		Fe II	18 F
5108.53		Cr I	8 F
5108.57		Cr II	14 F
5111.63		Fe II	19 F
5116.03	C	Ni XIII	1 F
5116.3		Ni XIII	1 F
5118.07		Zr III	1 F
5119.47		Cr II	2 F
5122.88		Zr II	7 F
5124.41		Cr I	16 F
5126.25		Cr I	16 F
5127.09		Cr II	14 F
5134.16		Cr I	15 F
5136.3		Co VII	1 F
5144.39		Zr II	7 F
5145.5		Cr IV	3 F
5146.55		Cr I	15 F
5146.8		Fe VI	2 F
5147.16		Fe I	19 F
5150.07		Cr I	15 F
5151.9		Fe III	1 F
5154.28		Cr I	16 F
5157.59		Cr II	14 F
5158.00		Fe II	18 F
5158.3		Fe VII	2 F
5158.81		Fe II	19 F
5162.53		Cr I	15 F
5163.94		Fe II	35 F
5165.98		Cr I	15 F
5170.84		Fe I	3 F
5174.95		Cr II	14 F
5177.0		Fe VI	2 F
5180.78		Fe I	20 F
5181.21		Cr I	15 F
5181.97		Fe II	18 F
5182.71		Cr I	16 F
5184.80		Fe II	19 F
5185		Co XI	1 F
5191.4	N	A III	3 F
5193.13		Fe I	19 F
5193.82		Cr I	15 F
5194.19		Fe I	20 F
5197.31		Cr I	15 F
5198.5		N I	1 F
5199.18		Fe II	35 F
5200.7		N I	1 F
5206.02		Cr II	14 F
5206.84		Zr II	7 F
5209.1		Cr IV	3 F
5212.95		Fe I	19 F
5216.07		V II	6 F
5219.02		Cr II	13 F
5220.06		Fe II	19 F
5220.56		Fe I	3 F
5224?		Sc VII	1 F
5224.15		Fe I	3 F
5224.30		Cr II	13 F
5225.90		V II	6 F
5228.64		Cr I	15 F

I A		Element	Multiplet No.
5227.25		V II	6 F
5228.44		Cr II	13 F
5229.06		Zr II	7 F
5235.07		V II	6 F
5236.6		Fe VI	1 F
5237.7		V IV	3 F
5238.35		Cr II	13 F
5239.47		Cr I	15 F
5242.00		Cr II	13 F
5245.25		V II	6 F
5247.84		Cr II	13 F
5248.64		Cr II	14 F
5254.49		V II	6 F
5255.97		Cr II	13 F
5261.61		Fe II	19 F
5268.4		Co VIII	1 F
5268.82		Fe I	19 F
5268.88		Fe II	18 F
5269.16		Ni II	14 F
5270.19		Cr II	13 F
5270.4		Fe III	1 F
5273.38		Fe II	18 F
5274.27		Ni II	9 F
5275.83		Ni II	14 F
5276.1		Fe VII	2 F
5278.39		Fe II	35 F
5279.2		Fe VI	1 F
5279.80		Cr II	13 F
5280.25		Fe II	16 F
5281.46		Ni II	9 F
5282.88		V II	6 F
5283.11		Fe II	35 F
5285.21		Cr II	13 F
5285.34		Cr I	15 F
5286.31		Ti I	10 F
5288.83		Cr II	12 F
5289.66		Fe I	19 F
5290.75		Fe I	20 F
5295.70		Fe II	17 F
5296.3		Cr IV	3 F
5296.84		Fe II	19 F
5299.42		Cr II	13 F
5302.86	C	Fe XIV	1 F
5303.37		Zr III	1 F
5303.6		Fe XIV	1 F
5303.99		Fe I	3 F
5304.06		Fe I	20 F
5308.68		Cr II	12 F
5308.9		Ca V	1 F
5310.36		Ti I	10 F
5312.52		Ti I	10 F
5313.88		Cr II	13 F
5316.97		Zr III	1 F
5322.2		Cl IV	3 F
5323.64		Cr II	13 F
5326.5		V IV	3 F
5331.46		Zr II	7 F
5332.4		P I	2 F
5333.65		Fe II	19 F
5334.30		Ti I	10 F
5336.4		Fe VI	1 F
5339.65		Cr II	13 F
5339.7		P I	2 F
5341.39		Cr II	12 F
5347.67		Fe II	18 F
5352.29		Fe I	20 F
5354.15		Cr II	13 F
5354.76		Zr II	7 F
5355.9		Fe III	1 F
5356.32		Fe I	3 F
5358.79		Ti I	10 F
5362.06		Fe II	17 F
5363.91		Fe I	20 F
5368.91		Cr II	13 F
5370.5		Fe VI	2 F
5374.6		Mn VI	2 F
5376.47		Fe II	19 F
5382.26		Fe I	3 F
5386.27		Cr II	12 F
5394.78		Mn II	9 F
5396.71		Ti I	10 F
5404.80		Fe I	20 F
5412.0		Fe III	1 F
5412.64		Fe II	17 F
5412.97		Fe I	20 F
5413.34		Fe II	16 F
5415.04		Mn II	9 F
5418.0		Cr III	2 F
5425.3		Fe VI	1 F
5427.17		Fe I	20 F

I A		Element	Multiplet No.
5428.6		Fe VI	1 F
5431.39		Ni II	9 F
5432.1		Cr III	2 F
5433.15		Fe II	18 F
5433.69		Zr III	1 F
5434.30		Zr II	6 F
5435.6		Cr III	2 F
5439.72		Fe I	3 F
5439.9		Fe III	1 F
5440.45		Fe II	16 F
5442.82		Cr II	12 F
5446.0		V IV	3 F
5449.43		Cr II	12 F
5453.4		Cr III	2 F
5460.0		Ca VI	2 F
5466.67		Ti I	9 F
5470.51		Cr II	12 F
5471.3		Cr III	2 F
5472.09		V II	5 F
5473.37		Mn II	9 F
5473.94		Mn II	9 F
5475.59		V II	5 F
5477.25		Fe II	34 F
5477.40		Fe I	20 F
5478.76		V II	5 F
5481.17		Fe I	20 F
5482.91		V II	5 F
5483.3		Cr III	2 F
5485.7		Fe VI	1 F
5493.10		V II	20 F
5494.80		Mn II	9 F
5495.42		Zr II	7 F
5495.82		Fe II	17 F
5496.84		V II	5 F
5504.22		V II	5 F
5505.1		Cr III	2 F
5505.25		Cr II	12 F
5509.51		Ti I	7 F
5509.63		V II	5 F
5517.2		Cl III	1 F
5517.24		Zr III	1 F
5518.00		Ti I	9 F
5520.18		Zr II	7 F
5523.28		Fe II	33 F
5523.3		Cr III	2 F
5527.33		Fe II	17 F
5527.61		Fe II	34 F
5527.92		V II	5 F
5528.87		Zr II	6 F
5530.11		Mn II	9 F
5530.69		Mn II	9 F
5532.41		Fe I	20 F
5534.6		A X	1 F
5535.09		Ti I	7 F
5536.98		Mn II	9 F
5537.7		Cl III	1 F
5539.6		Sc VI	1 F
5539.74		Zr III	1 F
5541.7		Mn VI	2 F
5542.54		Ti I	8 F
5543.9		Mn V	2 F
5545.88		Fe II	33 F
5546.59		Fe II	2 F
5549.49		V II	5 F
5550.25		V II	14 F
5550.3		Cr III	2 F
5551.31		Fe II	39 F
5552.93		Cr II	12 F
5554.68		V II	20 F
5555.33		Ti I	7 F
5556.31		Fe II	18 F
5557.14		Cr II	12 F
5561.21		Mn II	9 F
5561.66		Ti I	7 F
5562.94		Ti I	8 F
5565.68		Fe I	3 F
5567.08		Mn II	9 F
5572.6		Cr III	2 F
5573.84		V II	14 F
5574.04		Mn II	9 F
5575.69		V II	14 F
5577.350	A	O I	3 F
5579.06		Cr II	12 F
5579.65		V II	14 F
5579.73		Mn II	9 F
5580.82		Fe II	39 F
5582.01		Fe II	2 F
5584.81		Ti I	9 F
5587.2		Ca VI	2 F
5587.73		Ti I	7 F

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I A	Element	Multiplet No.	I A	Element	Multiplet No.	I A	Element	Multiplet No.
5588.15	Fe II	39 F	5832.40	Eu II	2 F	6100.26	Fe I	30 F
5591.3	Cr III	2 F	5834.64	Fe I	2 F	6101.1	K IV	1 F
5591.9	Mn V	2 F	5836.21	Cr I	14 F	6104.67	Cr I	12 F
5595.31	Ti I	8 F	5843.6	Cr III	1 F	6104.8	V III	3 F
5600.1	Cr III	1 F	5843.90	Fe II	34 F	6106.17	Cr I	12 F
5600.66	Fe II	33 F	5846.3	Xe III	2 F	6111.14	Cr I	12 F
5601.6	Mn VI	2 F	5852.48	Cr I	14 F	6112.75	Cr I	12 F
5603.2	K VI	1 F	5852.8	Co II	2 F	6113.40	Fe I	17 F
5606.36	V II	14 F	5855.37	Zr II	6 F	6113.97	Fe I	30 F
5609.27	Fe I	31 F	5863.1	Mn V	2 F	6114.52	Fe I	18 F
5611.94	V II	14 F	5867.17	Fe I	2 F	6114.66	Cr I	12 F
5613.81	V II	14 F	5867.87	Ti I	6 F	6114.85	V II	19 F
5614.62	Ti I	8 F	5868.3	Mn V	1 F	6117.60	Cr I	11 F
5615.19	Cr II	12 F	5872.77	Fe I	2 F	6124.57	Ti II	22 F
5615.8	Ca VII	1 F	5876.23	Cr I	14 F	6140.20	Cr I	11 F
5618.9	Cr III	1 F	5876.92	Cr I	14 F	6147.13	Ti II	22 F
5625.0	Mn VI	2 F	5879.32	Eu II	2 F	6151.82	Ti II	26 F
5625.4	Co II	2 F	5884.9	Cr III	1 F	6152.9	Cl II	3 F
5629.54	Ti I	7 F	5889.0	Mn V	2 F	6159.3	Mn V	1 F
5630.85	Ti I	8 F	5893.89	Fe I	17 F	6159.3	V III	3 F
5631.0	Ca VI	2 F	5898.30	Fe I	2 F	6160.1	V III	3 F
5631.6	Fe VI	1 F	5900.64	Zr II	12 F	6164.64	Ti II	26 F
5634.78	V II	20 F	5901.26	Fe II	34 F	6165.35	Zr II	12 F
5639.55	Fe I	2 F	5902.64	Fe I	18 F	6167.7	Mn V	1 F
5643.02	Zr III	1 F	5907.1	Mn VI	2 F	6167.84	Cr I	12 F
5643.44	Fe II	39 F	5913.34	Cr I	13 F	6169.37	Cr I	12 F
5644.00	Fe II	18 F	5926.18	Cr I	14 F	6172.91	Ti II	28 F
5648?	Ca XV	1 F	5929.20	Zr II	12 F	6174.44	Cr I	12 F
5649.67	Fe II	39 F	5929.31	Eu II	2 F	6176.08	Cr I	12 F
5650.39	Fe II	2 F	5931.19	Fe I	17 F	6177.21	Fe I	17 F
5650.94	Fe II	39 F	5932.88	Zr II	6 F	6178.35	Fe I	18 F
5654.85	Fe II	17 F	5933.4	Mn VI	1 F	6180.9	Co II	2 F
5656.39	Fe I	3 F	5934.41	Fe I	2 F	6184.51	Cr I	11 F
5659.83	Fe II	33 F	5934.73	Cr I	14 F	6188.55	Fe II	44 F
5662.62	V II	14 F	5936.99	Fe I	2 F	6193.7	Zr III	3 F
5664.02	Ti I	8 F	5943.2	Co II	2 F	6196.53	Zr II	12 F
5669.58	Zr II	6 F	5945.1	Cr III	1 F	6196.75	Fe I	17 F
5675.73	Zr II	6 F	5946.87	Fe I	30 F	6215.6	V III	3 F
5678.0	Fe VI	1 F	5949.99	Cr I	13 F	6220.7	Mn V	1 F
5679.3	Mn VI	1 F	5951.24	Cr I	14 F	6223.4	K V	2 F
5683.56	Fe II	33 F	5952.21	Fe I	30 F	6226.64	Fe I	17 F
5689.3	Cr III	1 F	5955.61	Fe I	18 F	6227.19	Ti II	22 F
5694.8	Mn V	2 F	5968.87	Fe I	2 F	6229.2	K VI	1 F
5696.36	Fe I	2 F	5971.33	Fe I	17 F	6230.4	Cr V	2 F
5699.57	Ti I	6 F	5971.6	Co II	2 F	6231.27	Fe I	29 F
5703.3	Mn V	2 F	5972.59	Cr I	13 F	6233.9	V III	3 F
5703.64	Ni II	14 F	5975.39	Cr I	13 F	6249.35	Cr I	11 F
5708.96	Fe I	2 F	5982.55	Cr I	7 F	6249.75	Cr I	12 F
5711.46	Ni II	14 F	5983.99	Cr I	7 F	6250.51	Ti II	22 F
5712.7	Cr III	1 F	5988.76	Cr I	7 F	6251.33	Cr I	12 F
5713.35	Fe II	2 F	5990.31	Cr I	7 F	6258.22	Cr I	12 F
5715.94	Fe I	3 F	5991.0	Mn V	1 F	6277.3	Mn VI	1 F
5720.9	Fe VII	1 F	5992.15	Cr I	7 F	6280.22	Cr I	6 F
5721.2	F III	1 F	5999.99	Fe I	2 F	6300.23 L	O I	1 F
5721.35	Fe II	33 F	6007.34	Ni II	8 F	6310.2	S III	3 F
5724.62	Fe II	39 F	6010.53	Cr I	14 F	6314.58	Zr II	17 F
5725.92	Fe II	39 F	6013.28	Ti II	9 F	6316.6	K V	2 F
5733.0	F II	1 F	6015.26	Zr II	12 F	6317.64	Zr II	11 F
5737.59	Ti I	6 F	6016.15	Fe I	18 F	6328.46	Ti II	31 F
5741.11	Fe II	33 F	6018.54	Fe I	17 F	6333.46	Cr I	11 F
5742.07	Fe I	17 F	6019.63	Fe I	18 F	6339.70	Fe II	15 F
5745.49	Fe I	3 F	6026.18	Cr I	13 F	6342.98	Cr I	11 F
5745.70	Fe II	17 F	6029.7	Mn V	1 F	6344.56	Zr II	12 F
5746.96	Fe II	34 F	6040.31	V II	19 F	6346.2	Mn V	1 F
5746.99	Fe I	30 F	6040.94	Cr I	12 F	6349.5	K V	2 F
5750.95	Fe II	2 F	6044.94	Zr II	12 F	6360.66	Ti II	18 F
5753.83	Fe II	33 F	6045.80	Cr I	12 F	6363.88 L	O I	1 F
5754.8 N	N II	3 F	6047.46	Ti II	9 F	6365.52	Ni II	8 F
5755.39	Ti I	6 F	6049.37	Cr I	13 F	6367.28	Cr I	11 F
5755.60	Ti I	6 F	6053.14	Ti II	9 F	6372.11	V II	13 F
5766.4	Ca VI	2 F	6059.21	Cr I	6 F	6372.9	Fe X	1 F
5773.51	Zr III	1 F	6061.50	Cr I	12 F	6374.51 C	Fe X	1 F
5775.05	Fe I	2 F	6062.98	Cr I	12 F	6376.6	Cr V	2 F
5778.35	Fe II	33 F	6065.2	V III	4 F	6377.59	Zr II	12 F
5778.97	Zr II	6 F	6065.34	Ti II	26 F	6377.83	Ti II	31 F
5780.29	Cr I	14 F	6067.88	Cr I	12 F	6381.13	V II	13 F
5783.4	Mn VI	2 F	6069.2	Mn V	2 F	6382.03	V II	13 F
5785.4	Cr III	1 F	6071.35	Cr I	12 F	6391.51	Ti II	18 F
5794.16	Ti I	6 F	6077.80	Ti II	26 F	6393.72	Fe I	29 F
5795.58	Cr I	14 F	6083.2	Co II	2 F	6396.2	Mn V	1 F
5796.28	Eu II	2 F	6085.5	Fe VII	1 F	6396.30	Fe II	44 F
5799.53	Fe I	31 F	6085.9	Ca V	1 F	6404.46	Ni I	2 F
5804.45	Fe I	2 F	6087.77	Ti II	9 F	6405.27	Ti II	18 F
5809.43	Fe II	33 F	6088.5	Mn V	1 F	6405.67	V II	13 F
5812.53	Ti I	6 F	6093.32	Fe I	17 F	6408.5	Zr VI	1 F
5815.53	Fe I	17 F	6094.65	Fe I	30 F	6409.46	Ti II	31 F
5815.79	Cr I	14 F	6095.96	Ti II	9 F	6414.93	Cr I	11 F
5819.54	Cr I	14 F	6096.3	Fe III	10 F	6415.69	V II	13 F
5823.2	Cr III	1 F	6098.1	V III	4 F	6418.86	Zr II	17 F
5828.12	Ti I	6 F	6099.31	Fe I	17 F	6420.88	Cr I	6 F

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I A		Element	Multiplet No.
6422.66		Ti II	31 F
6423.45		Mn II	8 F
6430.7		Cr V	2 F
6431.11		V II	13 F
6434.04		Ti II	18 F
6434.9		A V	1 F
6436.55		Ti II	18 F
6437.70		Ni I	5 F
6440.40		Fe II	15 F
6446.5		K V	2 F
6449.21		Zr II	11 F
6456.04		V II	13 F
6462.3		Cr V	2 F
6467.52		Ni II	8 F
6473.52		Ti II	31 F
6473.86		Fe II	44 F
6484.72		Cr I	11 F
6487.5		Zr III	3 F
6489.61		Ni I	5 F
6497.76		V II	13 F
6506.40		Zr II	17 F
6507.62		Fe II	32 F
6511.90		Cr I	11 F
6523.23		Mn II	8 F
6525.11		Fe I	15 F
6526.85		Si I	1 F
6527.4		N II	1 F
6535.99		Mn II	8 F
6548.1	N	N II	1 F
6548.47		Zr II	16 F
6548.87		Ti II	8 F
6550.29		Ti II	37 F
6558.51		Fe II	15 F
6561.75		Cr I	11 F
6569.73		Ti II	34 F
6583.6	N	N II	1 F
6583.66		Zr II	16 F
6586.7		Cr V	2 F
6589.42		Ti II	8 F
6589.74		Si I	1 F
6590.10		Mn II	8 F
6590.88		Ti II	37 F
6591.0		Cr IV	2 F
6592.93		Ti II	8 F
6595.88		Ti I	5 F
6599.7		Fe VII	1 F
6603.99		Mn II	8 F
6604.30		Ni I	5 F
6614.0		Fe III	10 F
6616.12		Ti II	34 F
6616.18		Fe I	16 F
6617.06		Mn II	8 F
6617.12		Ti I	5 F
6617.17		Zr II	17 F
6622.05		Zr II	11 F
6625.75		Ti II	37 F
6631.20		Fe II	31 F
6633.48		Fe I	15 F
6640.0		Cr IV	2 F
6642.57		Ti I	5 F
6642.66		Mn II	8 F
6646.31		Zr II	11 F
6647.05		Ti II	8 F
6650.61		Ti II	8 F
6651.26		Ti II	37 F
6656.77		Mn II	8 F
6660.68		Zr II	16 F
6661.7		Zr III	3 F
6668.16		Ni II	2 F
6668.63		Mn II	8 F
6670.76		Ti I	5 F
6671.31		Ti II	34 F
6671.90		Fe II	31 F
6682.18		Fe I	16 F
6692.46		Ti I	5 F
6693.12		Ti II	37 F
6697.09		Zr II	16 F
6698.02		Fe II	32 F
6700.1		Cr V	1 F
6700.6		Ni XV	1 F
6700.61		Ni II	8 F
6700.68		Fe II	43 F
6701.83	C	Ni XV	1 F
6705.5		Cr V	2 F
6709.08		Mn II	2 F
6710.68		Fe I	16 F
6717.0		S II	2 F
6721.89		Fe I	15 F
6722.02		Ti II	8 F
6725.67		Ti II	8 F

I A		Element	Multiplet No.
6729.85		Fe II	31 F
6730.25		Ni I	5 F
6730.99		Fe I	16 F
6731.2		Cr IV	2 F
6731.3		S II	2 F
6738.40		Sr II	1 F
6739.63		Ti I	5 F
6739.91		Y II	2 F
6746.2		Cr IV	2 F
6758.48		Fe I	16 F
6760.61		Fe I	15 F
6763.56		Mn II	2 F
6768.65		Ti I	5 F
6785.44		Zr II	5 F
6787.00		Ni I	5 F
6791.02		Ti I	5 F
6791.61		Ni II	8 F
6793.01		Zr II	11 F
6794.37		Ni II	7 F
6794.8		K IV	1 F
6808.42		Fe I	16 F
6809.21		Fe II	31 F
6813.73		Ni II	8 F
6823.42		Fe I	27 F
6826.9		Kr III	1 F
6829.01		Fe II	31 F
6829.24		Zr II	11 F
6830.06		Fe II	32 F
6836.94		Fe I	15 F
6850.42		Mn II	2 F
6864.4		Zr III	4 F
6868.18		Sr II	1 F
6872.17		Fe II	31 F
6873.87		Fe II	43 F
6884.50		Fe I	15 F
6893.2		Cr IV	2 F
6896.18		Fe II	14 F
6906.1		Cr IV	1 F
6911.05		Ni II	7 F
6915.6		Cr IV	2 F
6919		A XI	1 F
6932.4		Cr V	1 F
6933.53		Zr II	5 F
6933.67		Fe II	31 F
6941.63		Ni I	2 F
6944.91		Fe II	43 F
6954.69		Fe I	27 F
6956.25		Ni II	8 F
6963.02		Ti II	17 F
6963.85		Zr II	20 F
6966.32		Fe II	31 F
6972.07		Fe I	15 F
6978.57		Mn II	2 F
6984.07		Zr II	11 F
6989.04		Ni I	5 F
6991.75		Zr II	5 F
6991.8		Ti III	3 F
6999.99		Ti II	17 F
7002.02		Ni I	2 F
7003.95		Ti II	17 F
7005.23		Fe I	15 F
7006.3		A V	1 F
7008.84		Cr I	5 F
7008.89		Fe I	15 F
7011.24		Fe II	31 F
7013.33		Cr I	5 F
7016.21		Fe I	28 F
7016.80		Cr I	5 F
7017.94		Fe II	31 F
7021.0		Cr IV	1 F
7033.0		Ti III	3 F
7047.99		Fe II	31 F
7051.04		Ti II	17 F
7051.7		Cr IV	1 F
7054.37		Ni II	8 F
7055.06		Ti II	17 F
7058.76		Zr II	3 F
7059.62	C	Fe XV	1 F
7066.07		Zr II	15 F
7075.26		Fe II	31 F
7078.2		Fe III	9 F
7078.25		Ni II	8 F
7080.2		Fe XV	1 F
7086.7		Cr IV	2 F
7087.10		Cr I	10 F
7087.39		Ti I	4 F
7088.3		Fe III	15 F
7091.17		Y II	1 F
7091.68		Cr I	10 F
7092.89		Fe I	15 F

I A		Element	Multiplet No.
7093.98		Fe II	31 F
7102.84		Ni II	13 F
7107.04		Fe I	27 F
7109.01		Fe I	28 F
7110.54		Zr II	4 F
7111.4		Cr IV	1 F
7115.47		Ti II	17 F
7117.45		Cr I	10 F
7119.56		Ti II	17 F
7122.07		Cr I	10 F
7125.65		Cr I	10 F
7126.40		Ti I	4 F
7130.24		Ni I	5 F
7131.13		Fe II	43
7131.55		Y II	1 F
7131.77		Fe II	30 F
7134.08		Fe I	15 F
7135.8		A III	1 F
7144.60		Y II	4 F
7147.16		Fe I	15 F
7149.08		Zr II	5 F
7150.21		Ti I	4 F
7152.8		Ti III	3 F
7155.14		Fe II	14 F
7156.26		Zr II	5 F
7156.94		Zr II	20 F
7168.42		Fe I	14 F
7169.0		A IV	2 F
7171.6		Cr IV	1 F
7171.98		Fe II	14 F
7173.92		Ti I	4 F
7177.04		Cr I	10 F
7180.4		Cr IV	1 F
7181.74		Cr I	10 F
7185.39		Cr I	10 F
7193.97		Ni I	5 F
7196.91		Zr II	15 F
7197.88		Zr II	20 F
7204.82		Zr II	4 F
7213.88		Ti I	4 F
7214.69		Fe II	30 F
7219.15		Zr II	3 F
7220.0		Fe III	15 F
7233.4		Cr IV	1 F
7236.0		A IV	2 F
7238.29		Ti I	4 F
7243.99		Ni I	2 F
7250.78		Y II	4 F
7252.8		Cr V	1 F
7256.16		Ni II	7 F
7263.3		A IV	2 F
7264.43		Zr II	23 F
7264.51		Cr I	10 F
7269.33		Cr I	10 F
7273.06		Cr I	10 F
7273.33		Zr II	4 F
7274.6		Co II	3 F
7281.67		Fe II	30 F
7287.25		Ti I	4 F
7290.42		Fe I	14 F
7291.46		Ca II	1 F
7294.30		V II	4 F
7307.76		Zr II	23 F
7307.82		Ni II	7 F
7309.90		V II	26 F
7316.44		Fe I	28 F
7317.43		Fe I	14 F
7318.6		O II	2 F
7319.4		O II	2 F
7321.23		Fe I	28 F
7321.87		V II	12 F
7323.88		Ca II	1 F
7328.50		Ti I	4 F
7329.9		O II	2 F
7330.7		O II	2 F
7332.0		A IV	2 F
7332.06		V II	4 F
7338.0		Cr IV	1 F
7344.03		V II	12 F
7353.77		V II	4 F
7355.92		La II	1 F
7370.00		V II	12 F
7370.94		Fe II	30 F
7373.32		V II	4 F
7379.57		Ni II	2 F
7383.38		Cr I	10 F
7386.11		Zr II	5 F
7387.23		Cr I	10 F
7387.47		V II	4 F
7387.74		V II	12 F

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I A	Element	Multiplet No.	I A	Element	Multiplet No.	I A	Element	Multiplet No.
7388.16	Fe II	14 F	7689.65	Cr II	11 F	8039.68	Ti II	39 F
7390.6	Cr IV	1 F	7692.91	Mn II	7 F	8043.80	Cr I	9 F
7393.71	Ni I	1 F	7693.38	Mn II	7 F	8045.57	Cr I	9 F
7395.79	Ni I	2 F	7694.82	Ni II	7 F	8046.1	Cl IV	1 F
7398.95	V II	4 F	7696.30	Mn II	7 F	8047.93	Cr I	9 F
7404.36	Zr II	20 F	7706.06	Y II	3 F	8054.83	Fe I	13 F
7406.61	Fe I	14 F	7706.58	Cr II	20 F	8060.16	Ti II	6 F
7411.90	V II	4 F	7708.83	Fe I	1 F	8074.29	Ti II	7 F
7413.33	Ni II	2 F	7710.58	Zr II	23 F	8076.58	V II	31 F
7418.75	V II	4 F	7710.79	Fe II	30 F	8085.17	Ti II	6 F
7419.42	Fe II	1 F	7717.29	Ti I	24 F	8086.73	Fe I	24 F
7421.5	Co II	3 F	7724.7	S I	3 F	8091.87	Ti I	18 F
7430.26	V II	3 F	7733.12	Fe II	1 F	8098.70	Zr II	25 F
7431.08	V II	12 F	7740.11	Fe II	29 F	8101.03	V II	18 F
7431.2	V IV	2 F	7741.96	Fe I	14 F	8106.38	Ti II	39 F
7432.23	Fe II	47 F	7750.56	Cr II	11 F	8106.88	Cr II	20 F
7439.58	Fe I	28 F	7751.0	A II	1 F	8111.97	Ni I	8 F
7440.62	V II	3 F	7752.86	Cr II	11 F	8119.16	Fe II	38 F
7444.80	Zr II	3 F	7756.59	Fe I	14 F	8119.46	Ti I	18 F
7445.63	Zr II	4 F	7757.43	Cr II	11 F	8125.50	Cr II	1 F
7449.45	Fe II	30 F	7758.47	Cr II	11 F	8137.88	Zr II	19 F
7452.50	Fe II	14 F	7759.25	Fe I	14 F	8138.59	Ti II	7 F
7454.82	Zr II	5 F	7764.69	Fe II	30 F	8138.62	V II	31 F
7457.80	V II	4 F	7769.35	Zr II	4 F	8148.37	Ti I	18 F
7459.30	V II	4 F	7773.91	Fe I	13 F	8151.33	Fe I	1 F
7460.57	V II	3 F	7786.03	Zr II	3 F	8153.46	Ti I	18 F
7460.93	Zr II	3 F	7787.00	Y II	3 F	8160.66	Ti I	18 F
7464.39	Ni I	2 F	7793.9	Co II	3 F	8164.85	Fe I	13 F
7467.0	Co II	3 F	7797.2	Co II	3 F	8166.83	Ti II	24 F
7468.52	V II	4 F	7803.90	Fe II	1 F	8176.33	Ti I	18 F
7469.44	V II	3 F	7805.47	Mn II	7 F	8183.69	Cr I	9 F
7470.10	Y II	4 F	7805.66	Ti I	23 F	8185.52	Cr I	9 F
7475.84	V II	12 F	7805.96	Mn II	7 F	8189.44	Ti II	24 F
7477.26	V II	12 F	7806.22	Fe II	1 F	8192.33	Ti II	39 F
7479.79	Zr II	15 F	7806.88	Cr II	20 F	8194.57	Ni I	8 F
7489.15	V II	29 F	7835.98	Ti II	6 F	8201.77	Ni I	1 F
7497.68	V II	3 F	7845.41	Cr II	11 F	8220.64	Zr II	10 F
7507.44	Ni I	4 F	7847.76	Cr II	11 F	8225.25	Sc II	3 F
7510.54	Fe I	14 F	7849.08	Zr II	4 F	8228.16	Fe II	30 F
7515.13	V II	4 F	7853.3	Zr III	2 F	8229.81	Cr II	1 F
7518.35	V II	29 F	7853.51	Cr II	11 F	8229.81	Ti II	24 F
7518.81	Zr II	4 F	7859.60	Fe I	14 F	8231.57	Fe I	1 F
7523.27	Fe II	1 F	7867.83	Cr I	9 F	8233.22	Fe I	24 F
7526.46	V II	26 F	7869.5	P II	3 F	8235.69	V II	18 F
7526.94	V II	3 F	7874.23	Fe II	1 F	8245.12	Fe II	29 F
7530.9	Cl IV	1 F	7876.34	Fe I	13 F	8249.61	Ti I	3 F
7533.84	V II	3 F	7879.32	Mn II	7 F	8251.14	Cr I	9 F
7536	S XII	1 F	7888.6	Fe XI	1 F	8252.38	Fe II	38 F
7536.93	Fe I	14 F	7889.15	Zr II	19 F	8261.21	Sc II	3 F
7537.93	Mn II	7 F	7891.94 C	Fe XI	1 F	8261.59	Zr II	25 F
7539.67	Fe II	38 F	7893.57	Zr II	3 F	8268.36	Cr II	25 F
7540.14	V II	12 F	7894.10	Ti II	6 F	8271.32	Sc II	3 F
7540.54	Y II	3 F	7899.63	Fe I	14 F	8272.21	Cr II	25 F
7540.74	Mn II	7 F	7904.04	Y II	3 F	8275.57	Fe I	1 F
7541.42	Fe I	28 F	7906.95	Zr II	22 F	8279.99	Sc II	3 F
7541.95	V II	4 F	7908.30	Ni I	4 F	8284.1	Y V	1 F
7544.00	Fe II	14 F	7916.25	Ti II	6 F	8289.45	Fe I	13 F
7547.77	Mn II	7 F	7916.98	Fe II	29 F	8303.23	Ni II	2 F
7551.9	V IV	2 F	7917.03	Ti II	25 F	8307.67	Sc II	3 F
7552.38	Fe II	1 F	7926.90	Fe II	1 F	8308.68	Cr II	1 F
7556.03	V II	29 F	7929.70	Ni I	8 F	8315.71	Zr II	25 F
7567.6	Co II	3 F	7935.32	Fe I	26 F	8321.51	Fe I	26 F
7571.69	V II	3 F	7938.41	Cr I	9 F	8326.66	Sc II	3 F
7586.23	Y II	3 F	7940.71	Cr I	9 F	8328.78	Cr II	19 F
7604.53	Fe I	14 F	7945.02	Ti II	7 F	8337.65	Fe I	1 F
7611.2	V IV	2 F	7947.28	Cr II	20 F	8339.72	La III	1 F
7611.7	Co II	3 F	7954.24	Y II	3 F	8342.34	Fe II	30 F
7612.96	Ni II	7 F	7954.76	Zr II	25 F	8343.02	V II	17 F
7613.15	Fe II	30 F	7956.90	Ti II	39 F	8347.16	V II	17 F
7623.44	Zr II	3 F	7958.50	Fe II	29 F	8347.24	Sc II	3 F
7626.54	Zr II	15 F	7959.00	Fe I	1 F	8347.55	Fe I	1 F
7637.52	Fe II	1 F	7960.85	Cr II	20 F	8348.93	Ti II	30 F
7640.39	Cr II	11 F	7964.27	Fe I	1 F	8357.78	Cr II	1 F
7642.3	Co II	3 F	7965.96	Cr II	11 F	8363.05	Ti II	27 F
7642.61	Cr II	11 F	7966.36	Ti II	7 F	8367.07	Ti I	3 F
7647.06	Cr II	11 F	7974.31	Cr II	11 F	8371.34	Ti II	30 F
7658.84	Fe I	14 F	7975.58	Ti II	6 F	8380.68	Zr II	22 F
7658.92	Y II	3 F	7976.95	Ti II	6 F	8384.28	Sc II	3 F
7662.36	Zr II	23 F	7978.7	Mn IX	1 F	8400.89	Cr II	19 F
7664.67	Y II	3 F	7999.47	Fe II	1 F	8403.62	Sc II	3 F
7665.29	Fe II	1 F	8000.12	Cr II	1 F	8405.16	Ti II	27 F
7673.74	Fe II	38 F	8009.53	Fe II	46 F	8408.39	Zr II	19 F
7674.06	Fe II	46 F	8012.08	Fe II	46 F	8412.97	Fe I	12 F
7681.89	Cr II	11 F	8022.25	Fe I	13 F	8413.26	Fe II	38 F
7684.16	Cr II	11 F	8022.63	Fe II	29 F	8413.83	V II	17 F
7685.58	Fe II	46 F	8024	Ni XV	1 F	8416.96	Zr II	25 F
7686.19	Fe II	14 F	8024.21 C	Ni XV	1 F	8420.72	V II	2 F
7686.90	Fe II	1 F	8028.94	Ti II	7 F	8428.62	Zr II	22 F
7687.94	Fe II	46 F	8033.86	Ni II	7 F	8430.1	Ni VIII	5 F
7688.64	Cr II	11 F	8037.29	Fe II	30 F	8431.56	Fe I	1 F

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Forbidden Lines

I A	Element	Multiplet No.	I A	Element	Multiplet No.	I A	Element	Multiplet No.
8433.7	Cl III	3 F	8702.70	Zr II	9 F	9105.8	Ni VIII	5 F
8436.37	Ti II	15 F	8703.03	Ti II	33 F	9106.17	Fe I	36 F
8437.9	V III	2 F	8703.79	Cr II	18 F	9106.60	V II	25 F
8441.27	Cr II	25 F	8704.24	Ni II	12 F	9108.42	Ti II	32 F
8444.83	Zr II	10 F	8705.08	Ti I	16 F	9108.53	Zr II	10 F
8445.28	Cr II	25 F	8706.79	Fe II	52 F	9116.41	Fe II	51 F
8446.11	Fe II	29 F	8708.23	Ti I	17 F	9125.8	Cl II	1 F
8446.39	Cr II	25 F	8709.38	V II	2 F	9133.63	Fe II	42 F
8456.74	Fe I	33 F	8715.84	Fe II	42 F	9134.50	Sc II	1 F
8457.2	V III	2 F	8716.24	Ti I	2 F	9136.73	Fe I	36 F
8466.38	Ni I	4 F	8719.70	Ti II	36 F	9137.01	Ti I	15 F
8466.95	Fe I	24 F	8721.54	Ti I	16 F	9144.25	V II	10 F
8467.54	Fe I	33 F	8722.54	Ti II	16 F	9149.11	Ti II	35 F
8469.75	Fe I	25 F	8723.13	Ti I	29 F	9165.30	V II	10 F
8471.07	V II	2 F	8727.4	C I	3 F	9166.00	V II	10 F
8481.6	Cl III	3 F	8728.09	Fe III	8 F	9179.54	Zr II	9 F
8485.90	V II	17 F	8730.02	Cr II	18 F	9180.13	Ti I	21 F
8488.19	Fe I	24 F	8731.38	Ti I	17 F	9183.58	V II	9 F
8488.93	Ti I	2 F	8735.0	V III	1 F	9189.22	Ti I	15 F
8490.18	V II	17 F	8738.1	Fe VII	4 F	9191.34	Sc II	1 F
8490.34	Fe I	25 F	8739.71	Ti I	16 F	9196.26	Fe II	51 F
8490.44	V II	11 F	8740.05	Ti I	17 F	9199.44	Ti I	15 F
8490.71	Ti II	15 F	8743.65	Zr II	10 F	9199.54	Ti II	35 F
8491.16	Ti II	27 F	8743.66	Ti II	29 F	9202.81	Zr II	8 F
8493.1	V III	1 F	8745.0	V III	1 F	9208.72	Zr II	8 F
8501.8	Cl III	3 F	8746.99	Fe I	33 F	9209.25	V II	9 F
8510.24	V II	11 F	8761.8	Ni VIII	5 F	9216.20	Fe II	51 F
8518.20	Sc II	2 F	8763.28	V II	2 F	9217.51	V II	27 F
8520.22	Cr II	19 F	8763.95	Ti II	36 F	9222.25	Cr II	16 F
8521.66	Ti I	3 F	8766.76	Zr II	10 F	9223.81	Cr II	24 F
8525.41	Zr II	10 F	8770.71	Ti I	17 F	9226.60	Fe II	13 F
8529.50	Ti II	15 F	8771.24	Fe I	12 F	9228.60	Cr II	24 F
8530.15	Cr II	19 F	8774.69	V II	11 F	9235.10	Ti I	15 F
8532.12	Ti I	30 F	8775.19	Fe I	33 F	9235.60	V II	10 F
8544.49	V II	28 F	8777.26	Ti I	2 F	9245.82	Ti I	15 F
8545.12	V II	2 F	8782.6	V III	2 F	9251.37	Ti I	21 F
8549.64	Ti II	16 F	8787.6	P I	1 F	9253.44	V II	9 F
8550.5	Cl III	3 F	8787.81	Ti I	17 F	9255.10	Y II	5 F
8553.73	Ti II	16 F	8789.70	Ti II	29 F	9256.51	V II	9 F
8553.87	V II	11 F	8792.09	Cr II	18 F	9258.83	Ti I	15 F
8561.42	Zr II	26 F	8792.49	Fe I	24 F	9267.54	Fe II	13 F
8564.56	Fe I	1 F	8794.80	Fe I	25 F	9268.77	V II	10 F
8565.94	Ti II	15 F	8798.79	Ti II	33 F	9273.10	Cr II	29 F
8567.60	Sc II	2 F	8798.82	Zr II	26 F	9274.58	Cr II	16 F
8575.4	V IV	1 F	8799.09	Ti I	2 F	9274.68	Cr II	29 F
8576.73	Ti I	22 F	8799.1	P I	1 F	9279.59	V II	10 F
8579.15	V II	11 F	8808.47	Ti I	17 F	9281.86	Ti I	15 F
8579.5	Cl II	1 F	8815.9	V IV	1 F	9282.92	V II	27 F
8582.52	V II	28 F	8826.02	Cr II	19 F	9285.20	Sc II	1 F
8585.04	Ti II	15 F	8830.3	Co II	1 F	9288.45	Ti I	15 F
8585.14	Fe I	33 F	8830.7	Fe III	8 F	9291.03	Zr II	9 F
8588.84	Ti I	2 F	8831.94	Cr II	18 F	9292.19	V II	25 F
8596.27	Fe I	33 F	8832.31	Ni I	7 F	9307.5	Zr III	5 F
8598.3	V III	2 F	8838.2	Fe III	8 F	9308.03	Ti I	21 F
8598.79	Ti I	29 F	8843.42	Ni I	1 F	9313.72	V II	9 F
8599.1	V III	1 F	8848.50	Ti I	17 F	9324.01	Y II	5 F
8612.91	Ti I	30 F	8850.73	Zr II	9 F	9324.8	Ti III	2 F
8613.35	Ti I	2 F	8851.13	Fe II	52 F	9336.2	Co II	1 F
8615.4	V III	2 F	8851.45	Ti I	17 F	9337.40	Cr II	23 F
8616.96	Fe II	13 F	8858.94	Cr II	18 F	9342.24	Cr II	23 F
8621.67	Zr II	26 F	8862.47	Zr II	26 F	9343.61	Cr II	23 F
8623.51	Fe I	33 F	8868.91	Fe I	1 F	9349.2	Zr III	5 F
8625.25	Zr II	8 F	8872.37	Zr II	8 F	9356.40	V II	27 F
8625.8	V III	1 F	8878.98	V II	2 F	9358.90	V II	9 F
8625.93	Ti II	16 F	8884.12	Ti I	2 F	9364.08	Cr II	16 F
8626.85	Ti I	16 F	8885.66	Fe II	42 F	9376.93	Zr II	2 F
8627.35	V II	11 F	8891.88	Fe II	13 F	9377.33	Ni II	1 F
8640.22	Ti I	22 F	8899.71	Cr II	16 F	9377.83	Zr II	24 F
8640.27	Ti I	29 F	8909.40	Zr II	2 F	9381.78	Cr II	23 F
8643.14	Fe I	12 F	8921.0	Zr III	5 F	9386.74	Cr II	23 F
8645.95	Ti I	22 F	8929.91	Cr II	18 F	9386.96	Fe I	12 F
8647.89	Fe I	1 F	8930.70	Ti I	17 F	9388.12	Cr II	23 F
8648.72	Ti II	16 F	8931.47	Fe II	49 F	9392.85	Eu II	1 F
8649.11	Sc II	2 F	8954.34	Zr II	9 F	9395.23	V II	9 F
8649.72	Fe I	24 F	8969.06	Zr II	22 F	9398.59	Ti II	21 F
8651.14	Ti II	29 F	8970.23	Ti I	2 F	9399.02	Fe II	13 F
8652.17	Cr II	18 F	8970.56	Cr II	18 F	9405.71	Ti II	21 F
8653.20	Cr II	19 F	8983.71	Eu II	1 F	9427.18	Cr II	23 F
8658.20	Ti I	16 F	9012.04	Cr II	18 F	9428.3	Ti III	2 F
8661.20	Ti II	15 F	9033.45	Fe II	13 F	9432.18	Cr II	23 F
8661.96	Ti II	15 F	9033.73	Cr II	16 F	9442.77	Y II	5 F
8665.66	Y II	6 F	9043.52	V II	10 F	9444.2	Fe III	12 F
8669.28	Ti I	2 F	9051.92	Fe II	13 F	9454.15	V II	9 F
8674.27	V II	17 F	9058.16	Zr II	2 F	9457.95	Cr II	23 F
8682.13	V II	2 F	9069.4	S III	1 F	9470.93	Fe II	13 F
8683.4	V III	1 F	9071.07	Ti II	35 F	9487.4	Ti III	2 F
8689.73	Ti I	16 F	9072.86	Cr II	24 F	9487.5	Xe II	1 F
8691.53	Zr II	19 F	9089.24	Zr II	10 F	9488.3	Ti III	2 F
8698.18	V II	11 F	9093.67	Fe I	36 F	9490.96	Zr II	8 F
8698.69	V II	11 F	9096.76	V II	10 F	9491.15	Cr II	29 F

FINDING LIST

Forbidden Lines

I A	Element	Multiplet No.	I A	Element	Multiplet No.	I A	Element	Multiplet No.
9496.60	Zr II	27 F	10021.39	Ti II	4 F	10461.95	Zr II	24 F
9512.58	Cr II	16 F	10028.62	Fe II	28 F	10464.94	Zr II	1 F
9513.87	Fe II	41 F	10028.71	Zr II	1 F	10475.96	Ti I	27 F
9517.76	Fe II	52 F	10034.9	Zr III	5 F	10486.97	Sc II	6 F
9522.24	V II	32 F	10036.79	Fe II	40 F	10491.99	Cr II	28 F
9532.1	S III	1 F	10038.79	Fe II	48 F	10494.00	Cr II	28 F
9534.75	Zr II	14 F	10055.97	Fe I	11 F	10500.65	Cr II	10 F
9543.3	Zr III	5 F	10066.92	Ti II	5 F	10502.67	Cr II	10 F
9544.00	Ti I	28 F	10066.98	Ti II	5 F	10503.47	Ti II	3 F
9558.5	Co VII	5 F	10074.84	Eu II	1 F	10504.3	Fe III	8 F
9565.8	Ni VIII	5 F	10075.00	Fe I	38 F	10508.07	Fe II	28 F
9570.24	V II	9 F	10083.37	Zr II	13 F	10510.25	V II	15 F
9582.55	Zr II	9 F	10098.2	Cr VIII	1 F	10519.77	Ti I	27 F
9590.94	Cr II	16 F	10116.66	Ti II	4 F	10553.58	Mn II	1 F
9594.5	Ti III	2 F	10119.57	Cr II	22 F	10561.05	V II	24 F
9595.12	Ti I	28 F	10120.75	Zr II	24 F	10568.84	Ti I	27 F
9595.85	V II	32 F	10125.99	Ti II	5 F	10569.44	Sc II	7 F
9607.90	Zr II	8 F	10128.19	Zr II	27 F	10576.98	V II	15 F
9608.6	Fe III	12 F	10136.59	Cr II	10 F	10592.32	Fe I	23 F
9619.74	Fe I	12 F	10137.00	Cr II	10 F	10594.89	Fe II	40 F
9622.68	Ti I	28 F	10138.47	Cr II	10 F	10601.80	Fe I	37 F
9635.9	Cr V	4 F	10148.57	Ti II	4 F	10603.65	Zr II	1 F
9639.4	Co II	1 F	10163.13	Ti II	5 F	10608.1	Fe III	14 F
9642.42	Ti II	21 F	10178.29	Fe I	11 F	10608.18	Ti II	3 F
9644.96	V II	25 F	10188.1	Co II	1 F	10627.5	Ni VIII	6 F
9649.94	Ti II	21 F	10196.82	Fe I	36 F	10640.19	Ti II	3 F
9651.02	Cr II	17 F	10202.05	Ti II	5 F	10640.4	Fe III	13 F
9652.70	Fe II	13 F	10206.5	Xe III	1 F	10642.86	Ti I	27 F
9670.04	Zr II	24 F	10208.43	Zr II	14 F	10660.35	Sc II	7 F
9670.87	Zr II	27 F	10209.10	Ni II	12 F	10671.7	Co VII	5 F
9671.2	Zr III	5 F	10209.78	Cr II	10 F	10676.61	Ti II	3 F
9674.66	Ti I	28 F	10210.20	Cr II	10 F	10696.87	Cr II	27 F
9681.84	Ti I	28 F	10211.69	Cr II	10 F	10718.16	Ni II	1 F
9682.13	Fe II	41 F	10215.85	Cr II	22 F	10719.84	Cr II	10 F
9686.70	Cr II	16 F	10223.27	Cr II	22 F	10746.80 C	Fe XIII	1 F
9694.01	Eu II	1 F	10223.27	Ti II	5 F	10747.64	Ti II	3 F
9697.42	Ti I	28 F	10225.3	Ni VIII	6 F	10749.7	Fe XIII	1 F
9701.3	Fe III	11 F	10229.79	Fe I	11 F	10755.91	Cr II	27 F
9704.10	Zr II	9 F	10235.17	Fe I	36 F	10758.04	Cr II	27 F
9706.8	Ti III	2 F	10245.4	Co II	1 F	10758.32	Ti II	3 F
9720.20	Ti I	20 F	10261.18	Zr II	1 F	10770.38	Fe I	36 F
9731.40	Fe I	23 F	10262.84	Fe I	11 F	10771.88	Fe I	23 F
9733.52	V II	16 F	10264.65	Fe I	23 F	10780.17	Sc II	7 F
9752.5	Co VII	5 F	10280.7	Co II	1 F	10784.80	Ti II	3 F
9755.81	Fe II	50 F	10284.3	S II	3 F	10796.00	Cr II	27 F
9774.53	Zr II	14 F	10291.94	V II	15 F	10796.2	Fe XIII	1 F
9775.94	Fe I	35 F	10297.11	Cr II	28 F	10796.48	Fe II	45 F
9778.67	Ti I	28 F	10297.14	Ti I	27 F	10797.66	Cr II	27 F
9778.70	Fe I	12 F	10298.63	Cr II	28 F	10797.95 C	Fe XIII	1 F
9786.00	Ti I	28 F	10299.05	Cr II	28 F	10798.14	Cr II	27 F
9795.21	Fe II	28 F	10299.79	Cr II	22 F	10800.75	V II	15 F
9806.20	Cr II	17 F	10300.86	Ti II	5 F	10807.8	Cr V	5 F
9808.9	C I	1 F	10305.67	Cr II	22 F	10819.8	S I	1 F
9822.50	Fe I	39 F	10307.34	Cr II	22 F	10835.22	V II	23 F
9823.4	C I	1 F	10314.96	Fe I	38 F	10860.44	Zr II	1 F
9826.83	Fe I	11 F	10317.7	S II	3 F	10867.84	Fe I	37 F
9831.29	Ti I	20 F	10318.68	Fe I	23 F	10872.05	Sc II	5 F
9849.5	C I	1 F	10321.34	Fe II	40 F	10882.6	Fe III	14 F
9862.21	Fe II	40 F	10327.56	Fe II	28 F	10890.02	Zr II	13 F
9866.49	Cr II	17 F	10331.43	Cr II	10 F	10901.79	Ti II	3 F
9870.08	Zr II	8 F	10331.86	Cr II	10 F	10908.34	Fe I	34 F
9884.29	Ti I	20 F	10333.39	Cr II	10 F	10912.8	Co VII	5 F
9885.74	Ni II	1 F	10336.0	S II	3 F	10916.5	Fe III	13 F
9886.87	Zr II	27 F	10351.92	Zr II	13 F	10916.64	Fe I	41 F
9887.18	Ni I	6 F	10355.58	Zr II	1 F	10921.07	Ni II	1 F
9902.2	Kr III	1 F	10355.93	V II	15 F	10956.10	Ti II	3 F
9903.31	La II	1 F	10356.68	Ti I	27 F	10965.77	Ti II	14 F
9916.30	Eu II	1 F	10366.26	Cr II	22 F	10972.9	Co II	1 F
9917.9	S VIII	1 F	10369.7	S II	3 F	10983.23	V II	23 F
9918.01	Fe II	51 F	10372.30	Cr II	22 F	10986.0	Co VII	6 F
9926.0	Zr III	5 F	10373.30	Cr II	21 F	10991.52	Si I	2 F
9937.20	Zr II	27 F	10373.98	Cr II	22 F	11011.70	La II	1 F
9937.27	Fe II	51 F	10379.73	Ti II	5 F	11018.07	Fe I	32 F
9941.20	Fe II	51 F	10380.40	Cr II	21 F	11019.11	V II	24 F
9942.2	Fe III	11 F	10382.14	V II	15 F	11024.82	Ti II	13 F
9947.19	Zr II	14 F	10386.86	Ti I	27 F	11044.11	Fe I	35 F
9949.32	Fe II	48 F	10388.07	Cr II	21 F	11049.28	Ti I	26 F
9953.5	Co VII	5 F	10394.3	Cr V	5 F	11056.70	Cr II	26 F
9957.23	Ni II	12 F	10395.4	N I	3 F	11057.76	Ti II	14 F
9957.44	Fe II	28 F	10399.33	Sc II	6 F	11058.94	Cr II	26 F
9960.0	Fe III	8 F	10400.53	Fe II	40 F	11069.08	Fe I	37 F
9969.6	Fe III	8 F	10404.1	N I	3 F	11078.26	Ti II	2 F
9972.59	Ti II	5 F	10431.10	Fe II	40 F	11080.02	Ti II	14 F
9974.41	Fe I	23 F	10432.60	Fe II	48 F	11084.87	Ti I	32 F
9977.1	Ni VIII	5 F	10443.95	Fe I	11 F	11088.0	Fe III	13 F
9982.17	V II	16 F	10447.44	Ti I	27 F	11096.98	Zr II	18 F
9986.60	Fe I	39 F	10452.56	Fe I	11 F	11098.96	V II	23 F
9997.3	Mn X	1 F	10456.86	Sc II	6 F	11107.3	Fe III	13 F
9998.31	Fe I	11 F	10458.9	Zr III	5 F	11110.92	Ti II	2 F
10013.88	Fe II	41 F	10459.79	Ni II	11 F	11117.80	Ti II	13 F

FINDING LIST

Forbidden Lines

I A	Element	Multiplet No.
11123.53	Ti I	26 F
11132.24	Zr II	21 F
11151.54	Ti II	14 F
11173.94	Ti II	14 F
11178.94	Ti II	13 F
11185.14	Ti I	26 F
11185.70	Ti II	14 F
11191.43	Ti I	26 F
11193.04	Ti I	26 F
11202.11	Fe I	41 F
11203.92	Zr II	13 F
11228.14	Ti II	2 F
11233.80	Fe I	22 F
11237.04	Fe I	32 F
11242.12	Ti II	2 F
11246.87	V II	1 F
11261.79	Ti I	26 F
11272.6	Fe III	13 F
11280.5	Co II	1 F
11284.9	Fe III	13 F
11305.8	S I	1 F
11315.52	V II	30 F
11324.18	V II	22 F
11332.50	Ti I	26 F
11347.6	Co VII	6 F
11359.87	Ni II	11 F
11368.21	V II	22 F
11396.50	Ti II	2 F
11402.97	Ti I	26 F
11414.22	V II	1 F
11432.93	Ti II	1 F
11444.61	V II	1 F
11444.66	V II	30 F
11450.66	Fe I	40 F
11458.27	Ti II	2 F
11471.69	V II	23 F
11477.29	Ti II	1 F
11478.92	Ti II	38 F
11479.51	V II	23 F
11483.2	P II	1 F
11495.96	Fe I	32 F
11509.6	Ni VIII	6 F
11518.28	Fe I	32 F
11520.46	Ti I	31 F
11521.31	Ti I	33 F
11524.46	Fe I	32 F
11537.68	Fe I	22 F
11557.08	Ti II	1 F
11568.38	V II	22 F
11580.17	V II	1 F
11595.50	Zr II	18 F
11602.41	Ti II	1 F
11606.00	V II	23 F
11611.10	Ti II	12 F
11616.88	Ni II	1 F
11618.68	Ti II	2 F
11619.10	V II	1 F
11621.54	Ti I	1 F
11658.86	V II	22 F
11659.62	Zr II	18 F
11665.66	Ti I	31 F
11679.85	Ti I	14 F
11681.81	Ti I	14 F
11690.94	Ti I	14 F
11698.62	Zr II	21 F
11714.28	Ti II	12 F
11715.20	V II	1 F
11735.52	Ti II	1 F
11748.60	Ti I	14 F
11757.66	V II	1 F
11764.23	Fe I	32 F
11765.16	Fe I	40 F
11767.30	Ti I	14 F
11771.95	Ti I	1 F
11778.39	Ti II	12 F
11782.27	Ti II	1 F
11782.63	Cr II	26 F
11784.62	Cr II	26 F
11785.17	Cr II	26 F
11786.08	Fe I	40 F
11789.27	Cr II	9 F
11790.50	Fe I	32 F
11791.90	Fe I	22 F
11792.55	Ti I	14 F
11799.5	Ti III	1 F
11823.03	Ti II	12 F
11835.06	Ti I	14 F
11849.83	Ti I	1 F
11852.49	V II	22 F
11856.02	Ti I	1 F
11857.28	V II	1 F
11857.96	Ti II	12 F
11881.68	Ti I	14 F
11884.57	Ti II	12 F
11896.48	Sc II	4 F
11898.2	P II	1 F
11918.75	V II	21 F
11933.60	Ti I	14 F
11943.75	Cr II	9 F
11950.77	Ti I	14 F
11951.78	Cr II	9 F
11971.26	Ti II	1 F
11997.42	Fe I	40 F
12012.60	Ti I	1 F
12019.17	Fe I	40 F
12024.89	Ti I	14 F
12025.23	Fe I	22 F
12061.0	Ti III	1 F
12072.48	Fe I	40 F
12094.78	Zr II	21 F
12095.67	Ti I	14 F
12168.18	Cr II	9 F
12168.8	Co II	1 F
12168.80	Ti I	1 F
12170.50	Cr II	9 F
12178.83	Cr II	9 F
12209.6	Co VII	6 F
12211.22	Zr II	18 F
12219.66	V II	22 F
12300.16	Cr II	26 F
12300.77	Cr II	26 F
12323.27	Ni II	11 F
12372.55	Fe I	22 F
12387.48	Fe I	22 F
12417.8	Ti III	1 F
12460.65	Cr II	9 F
12463.08	Cr II	9 F
12471.70	Cr II	9 F
12645.23	Fe I	22 F

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U.S. DEPARTMENT OF COMMERCE
Frederick H. Mueller, *Secretary*

NATIONAL BUREAU OF STANDARDS
A. V. Astin, *Director*

THE NATIONAL BUREAU OF STANDARDS

The scope of activities of the National Bureau of Standards at its major laboratories in Washington, D.C., and Boulder, Colorado, is suggested in the following listing of the divisions and sections engaged in technical work. In general, each section carries out specialized research, development, and engineering in the field indicated by its title. A brief description of the activities, and of the resultant publications, appears on the inside of the front cover.

WASHINGTON, D.C.

Electricity and Electronics. Resistance and Reactance. Electron Devices. Electrical Instruments. Magnetic Measurements. Dielectrics. Engineering Electronics. Electronic Instrumentation. Electrochemistry.

Optics and Metrology. Photometry and Colorimetry. Photographic Technology. Length. Engineering Metrology.

Heat. Temperature Physics. Thermodynamics. Cryogenic Physics. Rheology. Molecular Kinetics. Free Radicals Research.

Atomic and Radiation Physics. Spectroscopy. Radiometry. Mass Spectrometry. Solid State Physics. Electron Physics. Atomic Physics. Neutron Physics. Radiation Theory. Radioactivity. X-rays. High Energy Radiation. Nucleonic Instrumentation. Radiological Equipment.

Chemistry. Organic Coatings. Surface Chemistry. Organic Chemistry. Analytical Chemistry. Inorganic Chemistry. Electrodeposition. Molecular Structure and Properties of Gases. Physical Chemistry. Thermochemistry. Spectrochemistry. Pure Substances.

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Organic and Fibrous Materials. Rubber. Textiles. Paper. Leather. Testing and Specifications. Polymer Structure. Plastics. Dental Research.

Metallurgy. Thermal Metallurgy. Chemical Metallurgy. Mechanical Metallurgy. Corrosion. Metal Physics.

Mineral Products. Engineering Ceramics. Glass. Refractories. Enameled Metals. Constitution and Microstructure.

Building Technology. Structural Engineering. Fire Protection. Air Conditioning, Heating, and Refrigeration. Floor, Roof, and Wall Coverings. Codes and Safety Standards. Heat Transfer. Concreting Materials.

Applied Mathematics. Numerical Analysis. Computation. Statistical Engineering. Mathematical Physics.

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- Office of Basic Instrumentation.
- Office of Weights and Measures.

BOULDER, COLORADO

Cryogenic Engineering. Cryogenic Equipment. Cryogenic Processes. Properties of Materials. Gas Liquefaction.

Radio Propagation Physics. Upper Atmosphere Research. Ionospheric Research. Regular Propagation Services. Sun-Earth Relationships. VHF Research. Radio Warning Services. Airglow and Aurora. Radio Astronomy and Arctic Propagation.

Radio Propagation Engineering. Data Reduction Instrumentation. Modulation Research. Radio Noise. Tropospheric Measurements. Tropospheric Analysis. Propagation Obstacles Engineering. Radio-Meteorology. Lower Atmosphere Physics.

Radio Standards. High Frequency Electrical Standards. Radio Broadcast Service. High Frequency Impedance Standards. Electronic Calibration Center. Microwave Physics. Microwave Circuit Standards.

Radio Communication and Systems. Low Frequency and Very Low Frequency Research. High Frequency and Very High Frequency Research. Ultra High Frequency and Super High Frequency Research. Modulation Research. Antenna Research. Navigation Systems. Systems Analysis. Field Operations.

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